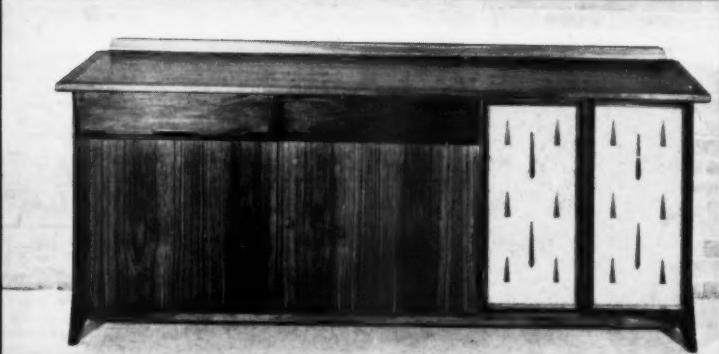
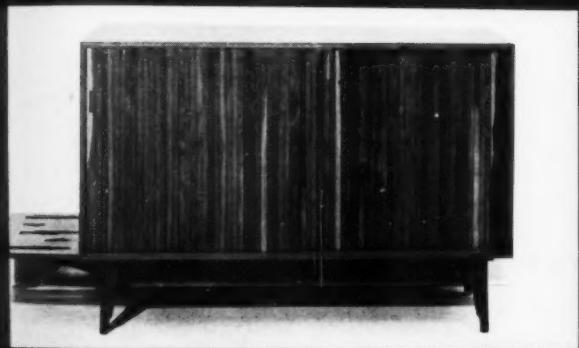
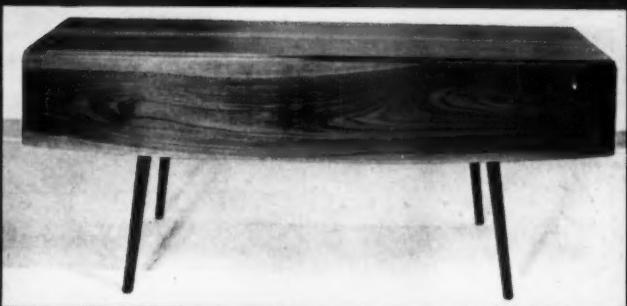
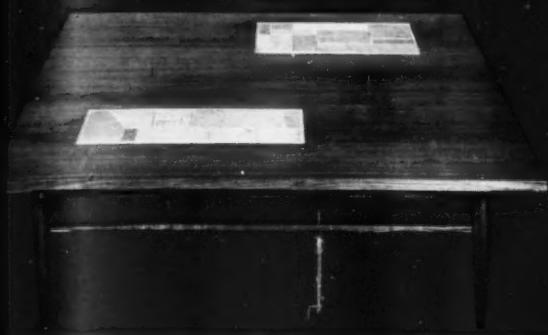


American

FORESTS

JUNE 1957



QUALITY

PAGE 12

In an age of mass production we still have them — true master craftsmen with wood whose creations bring joy to the modern home. Turn to page 12.

FACTS ON FORESTRY

In the six southeastern states served by the Seaboard Air Line Railroad—Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida—there are 113,000,000 acres of forest lands, comprising more than sixty per cent of the total land area.

Forestry has made extraordinary progress in this area in the past two decades. Notwithstanding the unprecedented demands for timber created by the building of pulp and paper mills and other wood-using industries, present timber requirements are being adequately met.

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For many years the Seaboard's Industrial Department, through its forestry division, has worked with wood-using industries, landowners and various interested agencies in the promotion of sound forestry practices to the end that an abundant and continuing supply of timber may be available for all future needs.



**Industrial Department
Seaboard Air Line Railroad Company
Norfolk 10, Virginia**



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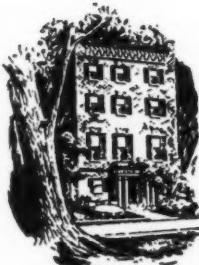
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The AFA

The American Forestry Association, publishers of *American Forests*, is a national organization—Independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.



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PAINLESS KNOWLEDGE

New book on water by Graham and Van Dersal combines expert treatment of pictures and text in "painless" technical product with eye appeal

MY forester friend Joe Kaylor of Maryland's Department of Forests and Parks once sent me a list of the things that a forest can do in any watershed to control runoff water and make it serve mankind.

This factual list which related only to forestry came to mind when I got hold of a copy of the book, "Water for America," by Edward Graham and William Van Dersal, published by Oxford Press for \$3.50. Half-photo and half-text, the facts about the whole problem of water are so skillfully interwoven that if knowledge can be acquired painlessly, this is the way to administer it.

In our jam-packed, fact-ridden age, it is a real contribution to the cause of conservation.

Their book of only 104 body pages, half photo illustration, is an outstandingly successful job whose obvious aim is to give to the uninitiated the fundamentals of United States' water resources, uses, needs, pollution, and the urgencies of and progress in water conservation.

The book has special values too, for the lay writer at work in the areas of water supply and water pollution control. Technical terms, such as "hydrologic cycle," "water table," "stream load," etc., are spelled out simply and clearly. Up-to-date statistics are so adroitly worked into the sequence of the sections as to make the volume uniquely useful for ready reference without impairing its popular appeal.

In this last, popular appeal, I think it may well turn out to be a distinctly important contribution to public education in its field.

To give the flavor of the book, I will quote the section on pollution. As with the other sections, one page is devoted to photographs, on the opposite page is the text. The photographs alone are worth the price of the book.

"When you make a thing useless, you destroy it. That is what we do when we pollute water. We have dumped sewage and factory wastes into our streams because that was the easiest and cheapest way to get rid

By JACK DURHAM

of them. This had made the water unfit for drinking, washing, farming, fun or industry. To make the water in our polluted streams pure enough to use again, we spend millions of dollars every year.

"From our homes the wastes from bathrooms and kitchens go into our sewers to be carried away. Only half of the people in the United States are provided with sewage disposal, and not all sewage is treated. Half of it is poured raw into our streams. It is not hard to imagine how this makes water filthy and unhealthful. Typhoid fever, cholera, dysentery

and a number of other diseases may be carried by infected water.

"More than half our factories discharge untreated by-products into streams. Acids from mines, brine from oil fields, wastes from canneries, slaughter houses, distilleries, textile mills and factories that make chemicals, paper, rubber, steel and food have made our streams dirty, foul and poisonous. These substances kill fish and make the water almost useless for human, industrial and agricultural purposes.

"In recent years it has become clear that stream pollution was helping to cause a water shortage. Although the water was still in our

(Turn to page 66)

"Oh, Bury Me Deep . . ."

By HENRY F. UNGER

TODAY, Mack's Rest on the top of Scree tail Hill of the Bush Highway, 45 miles northeast of Phoenix, Arizona and as lonely an area as could be imagined except for the occasional cattle who wander by, is a reminder about an unusual man who wanted to be buried in complete quietude.

Back in 1935 when Newton Bedford Forest McCord of Los Angeles was in his seventies, he was a frequent visitor to Mesa, Arizona and to friends who took him on picnics. When he insisted that he be buried on the lonely spot of Scree tail Hill, friends ignored him. But he persisted and a petition was sent to the Forest Service for a burial permit for McCord in Tonto National Forest, the largest in the nation. The regional forester adapted its regulations to suit the old man's whim.

The permit set aside one-eighth of an acre for a cemetery for the burial place of B. F. McCord. No fee was charged.

The forester however had certain provisions that McCord was made to note. "The permittee will comply with the regulations of the Department of Agriculture. The per-

mittee shall take all reasonable precaution to prevent and suppress forest fires. This use shall be actually exercised at least 365 days each year, unless the time is extended or shortened. In case of change of address, permittee shall immediately notify the forest supervisor."

Old man McCord on November 10, 1935, wrote, "I want to thank you for the permit so graciously granted, for me to be buried in the National Forest. And I promise you that after I locate there, I will not violate any of the forest regulations that are enumerated in the permit. Thank you, 'it won't be long now'."

A trust fund was arranged by McCord for his burial expenses and it took several chisels to carve out "Mack's Rest" on a granite boulder near the open grave.

The man with the unusual grave request lived until March 26, 1946, and as he requested only a handful of people were at his burial and no services were held.

Friends however with McCord when he indicated the spot as a grave remember his strong words, "I don't want no lawn mowers running over my grave."



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Forest Forum

Forestry As A Career

EDITOR:

My son and I have read your March issue with great interest because for several years now it has been my son's ambition to be a forester. He will graduate from eighth grade this year and is now planning his high school course. Few of the counselors have ever heard of forestry as a career it seems, and he is having a hard time trying to find and choose the subjects that he will need to be better suited to his courses in college. Maybe you know of someone qualified to advise him?

He started devising, in his mind, a fire detection device when he was only thirteen, but he does not have the technical background to bring his idea to completion. He is going to have to work his way through college, and realizes it. My husband is a staff sergeant in the Air Force, and not well and may not be here to see him complete his college. We hope he will. Bruce received a conservation badge in scouting for assisting on a tree plant in the Sierras.

I am advising my son to take courses that are applicable to the three possible avenues of interest to him, namely: forestry, construction engineering and architecture. Money seems to be the only measuring stick to a career nowadays in putting it before youth. It is hard for the young to see the intrinsic values and harder in this day and age for parents to show children that there are such things more important than money. This boy of ours loves the outdoors and we have tried hard to keep the spark alive in that direction for we know it will give him satisfaction in time to come, not measurable by a salary.

We enjoyed reading the magazine which we first saw at our doctor's office.

Marjorie J. Duncan
1550 Armstrong Avenue
Novato, California

Wilderness Outings and the Bill

EDITOR:

Forester Kenneth Pomeroy, in April *American Forests*, has issued a challenge which the Sierra Club cannot let pass! "The AFA," he said in talking about its excellent Trail Riders expeditions, "challenges any organization to do as much toward bringing a wilderness experience within the reach of people of ordinary means."

Let's look at some statistics.

The AFA Trail Riders, Mr. Pomeroy says, have ridden for the past 24 years. This year's expeditions, if I count correctly, will accommodate 360 people if filled, at an average cost of \$22.50 per day.

The Sierra Club, founded 16 years after the birth of the AFA, has conducted wilderness outings since 1901, with time out for two wars (4 years skipped). This year's expeditions will, if filled, accommodate 1,800 people at an average cost of \$5 per day. Last year 1,700 went at that rate. In

all our history, our outings have accommodated 25,000 people for a total of 300,000 man-days of wilderness travel.

Out of our experience and our desire to see this opportunity perpetuated in the fairest possible way, the Sierra Club has helped formulate the National Wilderness Preservation System idea. This was done in the course of our many biennial Wilderness Conferences, participated in by hundreds of conservationists and resource administrators from all over the country. The Sierra Club fully supports the wilderness-system idea and the current legislation to create that system.

We should be happy to submit, for publication in *American Forests*, our demonstration of the fact that when land is dedicated to wilderness preservation, it is dedicated to multiple use in perpetuity, and by no stretch of the imagination to "exclusive use."

Incidentally, we are pleased to invite members of the AFA, and of other organizations in the Natural Resources Council of America too, to attend any of the Sierra Club's 1957 Wilderness Outings. This summer they are in various parts of six western states and British Columbia—High Trips, Base Camps, River Trips, Burro Trips, and Knapsack Trips, all run on a nonprofit basis for anyone who can walk (with a few spare horses on hand for those who cannot). A postcard to us at 1050 Mills Tower, San Francisco, will bring a 32-page *Sierra Club Bulletin* with all the details.

Howard Zahniser—and his whole family—have been on some of these trips. We wish Ken Pomeroy and you, Mr. Editor, would come too. We think you'd then better understand why we think the AFA got off on the wrong foot in opposing the Wilderness System, and why we believe the proposal can bring about the most important conservation step since the National Park Act of 1916.

David R. Brower
Executive Director
Sierra Club
San Francisco, Calif.

(*Editor's Note*)—David Brower isn't going to get us into an argument on this. Both AFA's Trail Riders and the Sierra Club's fine outings contribute to appreciation of wilderness in America. Personally, we would like to take one of his trips and imagine it would be a fine experience. However, AFA's opinion on the Wilderness Bill remains unchanged. We do not believe it to be a desirable measure for reasons previously stated.)

S.O.S. From American Samoa

EDITOR:

American Samoa, a group of 7 islands, became one of the island possessions of the United States over 50 years ago. It was under the jurisdiction of the Navy Department until 1951 and is now under the Interior Department. I came to Samoa six

years ago as a high school teacher and since have become the high school principal. However, I am writing as an individual and not as a government employee.

We are most interested in giving our high school students every opportunity to know more of life outside of Samoa—about 50% of our students and graduates leave here for the states. Many of them want higher education but few can afford it; most of them who leave join the armed forces and do a creditable job. Not all the 9th grade students can enter the high school; we can only take about one-third of them because of drastic limitations of funds for buildings and teachers. This school year there were 200 ninth grade graduates with no future for further education.

We have a high school library which also serves as the public library for our island group. None of our schools are supported by local taxes; rather, most all functions of the local government are supported by a yearly congressional appropriation. There just isn't enough local revenue. So there is never much money for publications. We would very much like to receive *AMERICAN FORESTS* and the reprints of "The Progress of Forestry," "The Muskingum Story," and any others available. Does your organization send gift subscriptions to certain other organizations? Or would some of your members be interested in sending us other magazine subscriptions, or in sending books, new or old? We are particularly interested in reference books; but anything is most welcome, non-fiction or fiction. I must admit that this is a "begging" letter; you would realize why if you knew the dearth of printed matter here.

Marvin J. Senter
Pago Pago, Tutuila
American Samoa

Charge Answered

EDITOR:

Under the caption "Low Blow Charged" your March issue carried a letter from Forestry Dean W. F. McCulloch of Oregon State College in which he charged purloining and distortion of a talk he gave at a "closed meeting" of forest supervisors in Portland on March 28.

To keep the record straight, I am enclosing a copy of the prepared talk. There was no excerpting or distortion. This is a true copy of the full talk as mimeographed at government expense, without being classified or restricted, and distributed to division chiefs (R-6 and PNW), supervisors and rangers, research center leaders, and Chief, F.S. Copies were also received by conservationists in many organizations who were forced to infer that Dean McCulloch, as a resource manager, was overenthusiastically calling them names and prejudicing the audience. It was a needless attack in an otherwise laudable paper.

I am glad to learn what Dean McCulloch didn't tell me in May—that his talk was (*Turn to page 64*)



DAVID T. MASON, member, Society of American Foresters. A U. S. Forester, 1907-15, he later taught forestry at a major university, resigning in 1921 to become a consulting forest engineer. Credited with playing a major role in furthering the adoption of sustained yield forestry, he helped lay the foundation for a permanent forest industry in America.

planning a future for the industrial forests of America...

Beautiful, strong and versatile, wood is America's most popular building material. To assure an endless supply, tree farmers grow timber as a crop in repeated cycles.



The promise of a perpetual wood supply for the United States depends on systematically managed forestlands...not on untended wildlands. Aware of this fact more than 30 years ago, David T. Mason began a strong crusade to promote sound management of industrial forestlands. Through practical surveys and persuasion, he helped win wide acceptance of sustained yield forestry, under which the volume of timber harvested is kept in balance with the amount of new wood grown. He and other foresters also worked to bring about a favorable economic climate that encouraged industry to grow repeated crops of timber on a long-range business basis.

Today's tree farm management practice is sustained yield forestry in action. Industrial tree farmers plan for the future, keeping forestlands productive by growing crop after crop of trees to replace those harvested. Across the nation, more than 9,700 tree farms, owned by companies and by individuals, are dedicated to this scientific method of forest management...a total of about 41 million acres of commercial timberland.

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Editorial

Let's Fill Up the Forestry Schools

In 50 years the profession of forestry has grown steadily from scratch in the United States until it now has 16,000 trained technicians working out on the land. Of this number, 6700 are employed by federal and state agencies. Another 6850 are engaged in private forestry, including those who work for forest industries and as consultants. A total of 1700 are at work in allied fields including wildlife and range management, arboriculture, engineering, erosion control and research. Finally, some 750 key professionals are engaged in the task of educating future crops of foresters.

Until fairly recently, the growth of the profession has pretty closely paralleled the demand. However, this situation changed swiftly after World War II when forestry became an economic necessity for the wood industries. This new demand was offset in part by a bumper class of 2321 forestry graduates (many of them former G.I.'s) in 1950; but subsequent classes have not been on that same plateau. Of grave concern today is the fact that the number of forestry school graduates has been steadily dwindling even as the demand for their services has mounted. The box score on bachelor of science graduates from 26 accredited and other forestry schools since 1950 is: 1951-1964; 1952-1967; 1953-1945; 1954-957; 1955-829.

As of last month, it was conservatively estimated that 1200 forestry jobs will go abegging this year for lack of sufficient trained personnel. Openings have been reported in all public agencies. The Forest Service urgently needs 400 more foresters, had acquired only 200 as of the last report. One state reports 10 unfilled vacancies. Industry is hurting even worse. Orders from paper companies for as many as 10, 15, and even 20 foresters at a clip have not been met. Nor is there likely to be any slackening off in this demand for some time to come. The Department of Labor has estimated that we will need at least 1000 foresters a year—through the year 1975. And this estimate is probably low.

To what is this deficiency due? There are doubtless a number of factors, but before we go pointing the finger one substantial reason must be attributed to the fact that apparently The American Forestry Association is not doing its job on this score. The vitality of any movement or program must be measured in part by its appeal to youth. And this failure to fill up the forestry schools—most of which could double their capacities almost immediately—is just one of those uneasy things which point to the fact that AFA needs a rebirth both in zeal and appeal if we are to really carry our Program for Forestry over the top. Time was when people like Gifford Pinchot, Bill Greeley and the early AFA pioneers not only started forestry schools but

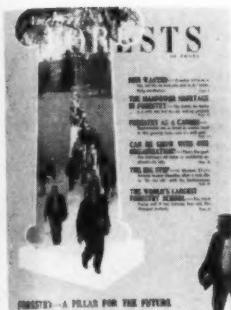
actually dragged likely looking prospects off trains to help fill them up. The reaction of those early pioneers—all enthusiasts and proud of it—imagined. Certainly it would have been anything but tepid. We need more of that spirit in forestry today.

What can AFA do to help? Representatives of the Society of American Foresters have been going into the high schools to sell young men on forestry as a career. They are working hard at it too, but they shouldn't be expected to do the job alone. Our potential resource here, it seems to us, is over 25,000 members—most of them influential citizens. Why not put some of them to work? A National Recruiting Committee—patterned after the Marines—and composed of prominent educators, business men and salesmen—might be an important first step. Under its direction, AFA could collect such material as is available and prepare such package, to thousands of AFA members along with a summons to action. Hand in hand with this activity could go special issues of *AMERICAN FORESTS* pointed directly to the youth of the nation, extolling the multiple benefits of forestry as a career, and hand carried by individual contact men and women into every school in the country. That and some plain hard selling.

And what a sales package it could be! We who are fortunate enough to work in or close to forestry know there is nothing quite like it. We know that there is something almost indescribably beautiful about forest land at work—something unique in its appeal. Who can ever forget a first visit to a Mount Hood National Forest, or a Clatsop Tree Farm, a Phillips Brook Forest, or a Gaylord Plantation? Trees at work for a variety of purposes—wood, water, game, fish, recreation and domestic stock—that is the harmonious pattern. Wilderness, which we also need, gives us an inspirational lift too; but it's not the same. Perhaps the difference is that there you are serving only yourself—recharging your own batteries. But the forester who looks out over his forest under multiple use is serene in the knowledge that he is serving *ALL* mankind now and forever. When Gifford Pinchot coined the phrase "wise use" he knew what he was doing. We ought to go into the schools and let some of these ideas spill out to today's younger generation.

Competition? Of course. But can't we stack our package—the forests of the future—against bridges, dams and atomic bombs? We can, if we develop some of that crusading missionary zeal of days gone by and vow to fill up every forestry school in the country to the top. The first prerequisite of a forestry program is for-

FORESTRY AS A CAREER



THE CAMPAIGN of The American Forestry Association to encourage outstanding young men to adopt forestry as a career was given a substantial boost last month when the Old Dominion Foundation announced it would underwrite the cost of placing a 32-page reprint of the March forestry career issue of *American Forests* in every high school in the nation.

In addition to providing copies of the booklet to 28,000 high schools, it will also be provided to counselling services, recreation, youth and other outdoor groups. An extra large original run of the March issue of the magazine has already been exhausted due to hundreds of requests.

"This career issue of *American Forests* has an attractiveness and appeal that probably could not be duplicated had people deliberately set out to write a career booklet on forestry for high school students," Monroe Bush, Paul Mellon's deputy for the foundation, said. "It is also our belief that this type of approach to recruitment problems might be attempted profitably by other agencies and groups."

Experts in secondary school education at the National Education Association are giving The American Forestry Association full support. Dr. Paul E. Elcker and Dr. Ellsworth Tompkins said they were glad to see forestry launching a campaign in a field that has been exploited by other leading professions.

However, the educators said the association should plan to at least

double a proposed run of 30,000 copies since there are certain to be many requests from schools for additional copies. "And that's where your payoff is," the educators added.

At the suggestion of both the NEA and the Office of Education, the distribution of the career booklet will start on September 15. Originally the association had planned to start the program in May, but educators said a fall distribution would obtain a more solid impact.

All educators contacted on the proposal stressed that both schools and teachers are weak on informative, attractive materials regarding conservation careers. The question was raised as to whether it would be possible to publish another issue of *American Forests* that would provide information on all types of careers that are open to boys and girls in the several professional conservation fields.

The Old Dominion Foundation is no newcomer to the field of conser-

vation. It contributed substantially to the Cape Hatteras Park project and to surveys now in progress to preserve remaining natural coastal areas. In Virginia, the foundation makes an annual grant of \$9,000 to enable three foresters from the state to take specialized training at graduate schools of their choice.

"The state's forestry staff has only 70 men," Mr. Bush said, "and in three years nine of them will have had unusual experience that ought to provide a stimulating influence all across the board in what is inevitably an isolated occupation."

A \$45,000 grant was made by the foundation to help expand the educational program of Virginia Forests, Inc.

Grants totalling \$23,962,210 have been made by the foundation from late 1941 through 1955. As founded by Paul Mellon, the foundation's major fields of interest are liberal education, psychiatry, conservation and Virginia.



From left, Monroe Bush, Old Dominion Foundation, Fred E. Hornaday, executive vice president, AFA



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THE AMERICAN FORESTRY ASSOCIATION
919 SEVENTEENTH STREET, N. W., WASHINGTON 6, D.C.

AN OPEN LETTER TO MEMBERS AND FRIENDS
OF THE AMERICAN FORESTRY ASSOCIATION

Have you ever attended an Annual Meeting of your American Forestry Association? If not, I believe you have missed a very rich experience both from the standpoint of learning more about new developments in Forest Conservation, and of meeting other fine citizens interested as you are in the protection and wise use of our forests and related resources of soil, water, wildlife and recreation.

This year's Annual Meeting--our 82nd--will be held at the Loraine Hotel, Madison, Wisconsin, September 30 through October 2. I have participated in many Association meetings from Los Angeles, California to La Plata, Maryland, and from Jefferson, New Hampshire to Biloxi, Mississippi, and I truly believe that this Madison meeting will be the most interesting and worthwhile gathering in AFA history.

Plans call for morning indoor sessions on Monday and Tuesday, September 30 and October 1, followed by half day tours through the Forest Products Laboratory and other nearby points of interest. The afternoon will be devoted to exhibits with a dramatization of "Wood Products on Parade." Wednesday will be an all day excursion to Wisconsin Dells, Crandall Plantation on Black Hawk Island, and the Devil's Lake State Forest.

Whether you are an "experienced" Annual Meeting participant or a newcomer, I urge you to send in your reservation today to the Loraine Hotel. (See announcement and rates on page 54.)

You will find Madison one of the beautiful cities of our Nation and we will assure you of a warm welcome.

Fred E. Hornaday
Fred E. Hornaday
Executive Vice President

FEH/h

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Skillful engineering, exclusive and unique manufacturing methods, and selected top grade steel make genuine, patented OREGON Chipper Chain the unmatched performer from the standpoints of speed, efficiency and wearing quality. A long life of effective production is built into every genuine OREGON Chipper Chain.



Scores of thousands of OREGON® Chipper Chain users have proved it.

You get important "extra links" . . . in the form of extra big-cutting profit, extra-long chain life . . . in every package of genuine OREGON Chipper Chain, whether it is a 100, 50, or 25-foot reel, or a continuous length of chain for a specific saw and bar.

You get these important extra values because genuine OREGON Chipper Chain is not only built right . . . it's backed right.

A nationwide organization of OREGON-trained saw chain service men see to it that you get the extra-big cutting profits, the extra-long chain life which are built into every genuine OREGON Chipper Chain.

No other cutting chain is so well-built, so well-backed. No other chain service group is so large, so well qualified to show you how to use and file your chain . . . so well trained and equipped to maintain and repair your chain professionally.

When you buy saw chain, specify genuine OREGON Chipper Chain . . . the chain that gives you extra-big cutting profits, extra-long chain life, because it is both built right and backed right.

TAKE YOUR SAW CHAIN PROBLEMS
TO THE SHOP WHICH DISPLAYS
THIS SIGN —



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OREGON SAW CHAIN CORP.

PORLAND 22, OREGON

OREGON® CHIPPER CHAIN

The Standard Factory Equipment

and Replacement Chain

Built Right - Backed Right

"How OREGON helps me"



W. F. ADKINS, Greenacres, Washington

"My OREGON dealer understands my saw chain problems. His instructions on maintaining chain and bars has given me longer chain life and higher daily output at minimum expense. He stands ready to give 24-hour service on our problems."

OREGON TASK FORCE SERVICE

*Gives Chain Saw Owners
Extra-Long Chain Life
Extra-Big Cutting Profits*

When you buy an OREGON Chain, you get a lot more than just a cutting chain. You get the backing of qualified OREGON dealer service personnel who are interested in your OREGON chain for the duration of its use.

Chain saw owners everywhere are getting more profits from their saws, more productive service from their chain, through OREGON Task Force Service dealers.

Read how these saw owners have benefited from OREGON Task Force Service. You will get the same advantages...the same extra-big cutting profits and extra-long chain life...when you take your saw to an OREGON Task Force Service shop for maintenance.

Look for the big TFS sign your Task Force Service shop displays. You'll see one in your area.



ROGER LAVOIE
Ste-Rose du Dégelé, Que.
"I've greatly benefited by OREGON service and high quality. I have been cutting with OREGON chain for five years and find it is the most efficient and long-lasting chain on the market."



JOE BLAYLOCK
Roland, Arkansas
"My dealer has been great help in teaching me to maintain my OREGON chain properly. I cut 240 cords of pulpwood with my last OREGON chain, which lasted until the teeth were practically filed away."



MELVILLE A. NUGENT
New Gloucester, Maine
"My OREGON dealer not only takes good care of my chain, bar and sprocket problems, but has shown me how to take care of them and get the most out of them. OREGON-trained dealers really back OREGON chain right."



ADRIEN ROUSSEL
Edmundston, N. B.
"I have used OREGON chain since it first became available in Canada. There is nothing like it for a fast, smooth cut in both hard wood and pulp wood, either summer or winter. In addition, my dealer's service is always excellent."



JIM MARIER
Idyll Park, Oregon
"OREGON chain is easiest to file, and bores the best of any. As an all-around chain you can't beat it. I'm in the woods to make money, and my dealer's very good service helps."

TAKE YOUR SAW CHAIN PROBLEMS TO THE SHOP WHICH DISPLAYS THIS SIGN —



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PORLAND 22, OREGON

OREGON® CHIPPER CHAIN
The Standard Factory Equipment
and Replacement Chain
Built Right - Backed Right

Washington Lookout



By ALBERT G. HALL

TRANSFER OF THE KLAMATH INDIAN FOREST LANDS TO THE U. S. FOREST SERVICE and transfer of the Klamath marshlands to the U. S. Fish and Wildlife Service is proposed by Oregon Senators Neuberger and Morse as their solution to a problem that has vexed conservationists and legislators since the passage of the "Klamath Termination Act" in August of 1954. Under that act, the assets of the Klamath tribe are to be sold to satisfy the interests of the members of the tribe. The question is how to dispose of them, and at the same time maintain continuous harvests of timber on which a body of forest industry in the Klamath Basin is dependent. An earlier bill, S. 469, introduced by Senators Neuberger and Morse, calls for a delay in the disposition of the Klamath lands until the end of the 85th Session of the Congress. The bill has passed the Senate, and it is predicted that the House will also approve the measure. The new Neuberger-Morse proposal, S. 2047, calls for purchase of the timberlands and marshlands by the Department of the Interior, and the transfer by that department of the timberland to the Forest Service and the marshland to the Fish and Wildlife Service. Other tribal lands — agricultural and grazing — under the new bill, would be sold on a competitive bid basis, with preference given to members of the tribe. Fair market value for the federal purchase would be determined by a three-man appraisal board, and the Indians paid their proportionate shares within one year following acquisition by the United States.

OPPOSITION TO THE BILL MAY BE EXPECTED FROM MANY SOURCES. The Klamath Indians themselves have no assurance under the bill that the "fair market price" would be equal to that which might be reached by competitive bidding for practicable logging or other appropriate economic units as provided in the Act of August 13, 1954. Indian associations which help guard the welfare of the Indian groups, may point out that this bill might solve the problem of forestry, but it would still result in a cash payment to each Indian, far in excess of that which they have been accustomed to handling, and subject them to a social and economic life for which many of them are not equipped. Opponents of the enlargement of federal ownership, will argue that these lands are private lands — they belong now to the Klamath Tribe — and as such they should not be blanketed into the federal domain. If public ownership is desirable, it will be pointed out by some that the lands lie wholly within the state of Oregon which has a competent forestry and wildlife organization. In commenting on the bill, Senator Morse said that neither he nor Senator Neuberger were "married" to it, if the hearings show it needs to be modified. The Neuberger-Morse measure, if it serves no other purpose will focus attention on the social and economic problems that will arise if an orderly relinquishment of federal wardship over the Klamath Tribe is not developed. It may even have the effect of generating support for repeal of the Act of August 13, 1954, and a continuation of the present administration of the Klamath lands by the Bureau of Indian Affairs.

FOR THE INDIANS OF MINNESOTA a different solution is being sought by Representative Marshall of Minnesota. His bill, H. R. 6943 would establish a Minnesota Indian Administration, backed with \$10 million revolving fund, to perform all the functions now carried on by the Bureau of Indian Affairs. The proposed administration would act for all Minnesota Indians except the Red Lake Band, and would be empowered to "promote, sponsor, or engage in a plan or program of tree planting and reforestation on Indian lands, tribal or allotted, in order that a future supply of timber may be harvested on the principle of sustained-yield management."



Editorial

The Eternal Forest

By Frank Heyward

The remarkable development of Louisiana's forests during recent years is an inspiring story of American enterprise. In 1913 this state's forest resources were judged to be inexhaustible. That year the cut of lumber in Louisiana exceeded the cut for all other states in the nation except Washington.

But the forests were not inexhaustible. So great was the demand for dense grain pine lumber, eagerly sought the world over, the sawmills were given to one thought only—meet the demand! This they did, but at a price to the land. For the land was stripped of its timber. Some sources thought the lumbermen should be required by law to practice conservation. It is true that few of them gave much thought to growing more timber. How could they and still be regarded as sane business men? Were not the great trees being harvested two to three hundred years old? It was inconceivable that a new tree crop could be grown as a practical venture. Inconceivable to everyone save one man—Henry Hardtner.

Hardtner, a successful lumberman with great vision, began buying cut-over land in 1904 when his competitors were selling theirs. Many of the mills actually had cut-over land departments whose sole function was to get rid of their company's holdings of logged off land. These stump lands were the scene of annual fires, and in their bleakness and utter desolation were unequalled by anything in the nation, perhaps the world. In 1924 it was estimated that Louisiana's cutover lands totaled 12 million acres.

It was Hardtner who changed the destiny of the barren lands, not only in Louisiana but throughout the entire South. For it was he who first pointed to the fallacy in the belief that a new pine crop could not be grown by private enterprise.

By fencing his cut-over land against the ravages of hogs and enlisting the help of his neighbors against fires, Hardtner saw nature quickly re-seed his open areas with untold millions of baby pines. His was the first effort in the South to grow pines as a crop, and it was wondrously successful.

Inspired by Hardtner's determination and encouraged by his results, the Great Southern Lumber Company was the second company to undertake reforestation. And so it was that the Urania Lumber Company, under Henry Hardtner, followed by the Great Southern Lumber Company under Col. W. H. Sullivan, led the way in industrial forestry in the South. Whereas Hardtner had used natural regeneration as

**On its 20th anniversary, Gaylord Container Co. can point with pride to 145,587 acres of planted pines
Photo by Bogalusa Daily News**

the basis of his project, the Great Southern established its new forests by hand planting. Soon after the original planting in 1920, the Great Southern pine plantations became known all over the nation. They were a standard part of every textbook on reforestation. Having even more popular appeal than Hardtner's natural forests, the man-made forests of the Great Southern became a wonderful object lesson with which to convince hard-boiled industrialists that the reforestation job "could be done."

By the late 30's, practically all Louisiana's original forests were gone, and as a forest products state, Louisiana was written off the books. But the American way was in full play. The lumber industry, supplemented by its rapidly growing companion, the paper industry, decided that the forestry feats of Hardtner and the Great Southern were attainable by any company with the will and patience for the job. Throwing themselves into the support of the State Forestry Commission and intelligently led by the U. S. Forest Service, private companies started the long trail back. They were joined by many owners of investment holdings who saw the possibility of undreamed of riches from trees grown above ground on land purchased for mineral wealth under ground. In 1951 Louisiana's first Tree Farm was dedicated. It was fitting and appropriate that it should be the lands of the Urania Lumber Company. It was the first of many.

As a result of all this forestry activity, a recent state-wide survey by the U. S. Forest Service showed that Louisiana's forests had made a remarkable comeback. Few had dared hope for the results disclosed by the survey. The forests were in 1954 growing twice as fast as they were being used! No other state in the nation can make a similar claim. Truly the American way had prevailed! State, federal and private forces had joined to accomplish a tremendous job. And they had succeeded, not in compliance with any law, but by working in close harmony through mutual desire.

But the job will not be completed until every acre of forest land in Louisiana is productive. This will require concentrated effort for many years to come in fire protection, planting idle land, the control of unwanted trees growing to the detriment of wanted ones, and convincing the small owner that tree farming is profitable. The job is big but no bigger than the forces at hand to tackle it. The forests were an integral part of Louisiana's past, and long after the last drop of oil and last ounce of mineral have been exhausted, forests will flourish. Because under the modern concept of Tree Farming, the life of a forest is eternal.

Mr. George Nakashima
is leader among hand
furniture craftsmen

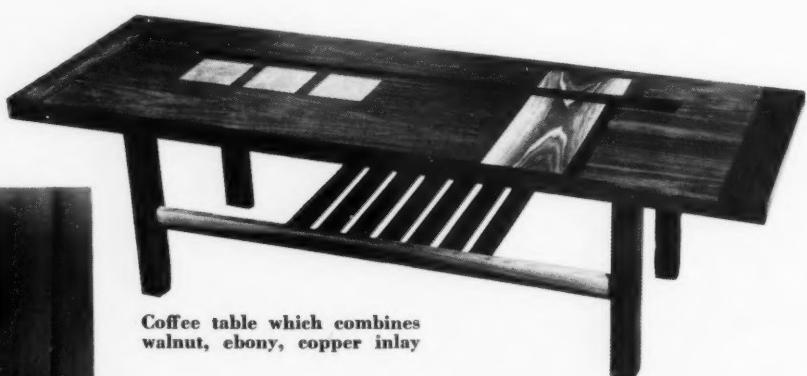


Craftsmen prefer to work on
original pieces rather than copies



QUALITY

By CREIGHTON PEET

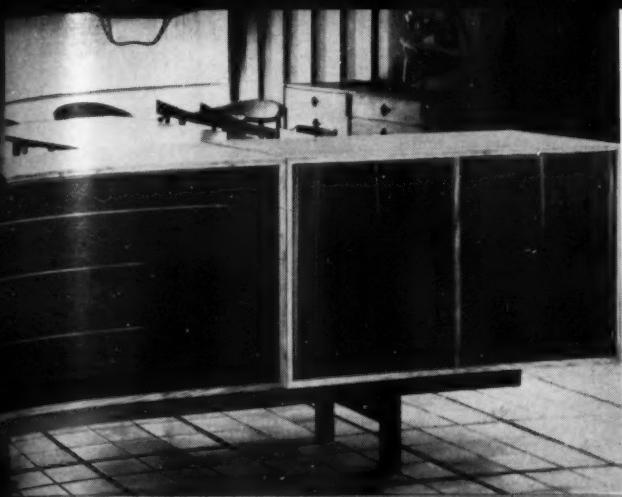


Coffee table which combines
walnut, ebony, copper inlay



Black walnut together with black
leather make an attractive chair

Dining room, cabinets, and staircase
created by Hardwood House, Inc.



These storage units are made of rift oak and quartered walnut



"Hand" craftsmen contribute hand finishing and original designs

THEY'RE a wonderful crew of individualists, and they're hidden away in the most unlikely corners all over the U.S. . . up dark, dusty flights of stairs in an ancient loft building in New York City's Greenwich Village . . . on a rise in Pennsylvania's rolling farm land set in a grove of blossoming magnolias . . . in barns, garages, basements, cinder block shacks . . . in California, Wisconsin, New Hampshire, Ohio, Boston, New Jersey . . .

They're craftsmen who have chosen to buck the industrial age

by devoting their lives to fine woodworking. While all of them are as much interested in making a living as the next man, they're trying to do it with quality rather than assembly line volume production. They'll never become big corporations with salesmen in every state—but they make a living, and they like what they are doing.

Occasionally these craftsmen do special chairs, tables, chests of drawers, Hi-Fi cabinets, or bookcases to fit into a customer's home, but more often they design and build

pieces which seem to them both useful and aesthetically pleasing. Customers come to their shops and either buy these original designs, or order copies or adaptations of them. Asked which they would rather do, these woodworkers unanimously agree they would prefer to work on original pieces, which allow them to change, modify, and experiment. "When you do a job for somebody else you have to accept their ideas," one said very simply.

Last winter the Museum of Contemporary Crafts in New York City

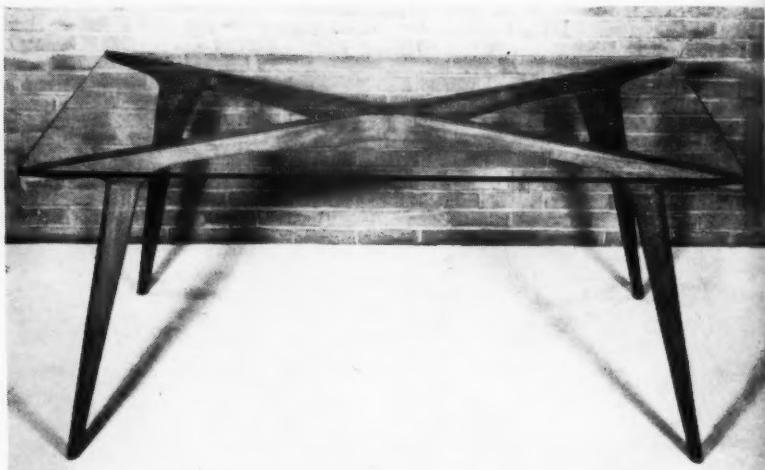




This walnut audio unit accommodates many needs



Sam Maloof, like all hand craftsmen uses power tools in his work



Mahogany and glass dining table on display at Museum of Contemporary Crafts

collected 78 examples of the work of 36 wood craftsmen from all over the U.S. for a seven week's exhibition, and it is interesting to note that a good three-fourths of these pieces were on loan from the homes of their owners. These were scattered throughout some of the nation's best suburbs, evidence of the widespread appreciation of hand made furniture.

As for a look at some of the country's leading craftsmen in this field, a surprising fact soon becomes apparent—a good proportion are college graduates who started out in life in some entirely unrelated field. George C. Alexander, for example, who works in mahogany, oak, cherry, etc. in his shop in the town of Princeton, N. J., graduated from Harvard in anthropology and turned to furniture making after a try at banking.

Richard Artschwager majored in chemistry at Cornell; George Nakashima, most famous of all wood craftsmen, graduated in architecture from MIT; and Charles Brooks majored in English at Harvard, while Dewey Hodgeson has a B.S. degree from Lawrence College in Wisconsin. Most unusual is the husband and wife team of Joyce and Edgar Anderson, Jr., who work in a basement in West Orange, N. J., and are now building themselves a house in a nearby town. Anderson graduated from Pratt Institute in architecture while his wife studied economics at New York University. They work in walnut, rosewood, zebra wood and many other unusual woods from South America, and their outstanding job at present is the interior of the chapel at the University of Maine. This will feature an altar



and cross made of white holly, contrasting with the darker woods used for pews and chancel railing.

Then there is Walker Weed (Dartmouth '40) who works in 200-year-old Gilford, New Hampshire, where, he says, he has "quiet, comfort and no interruption" in his house on Gunstock Mt. He makes his furniture in the barn, in one corner of which he has a small show room.

Right off it should be explained

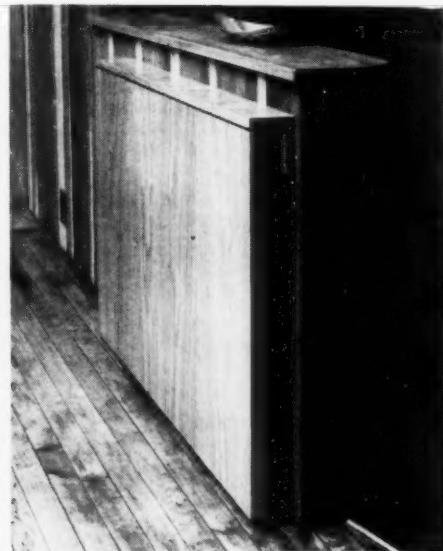
that today's "hand" craftsmen all use power tools, and most have one or two assistants they call in every now and then when the orders pile up. It would be sheer sentimentality, they will tell you, to insist on sawing a board by hand when a machine can do it perfectly in a few seconds—and an electric sander saves a lot of time, too. The average wood-worker probably has six or more such pieces of power equipment.

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Craftsman Dewey Hodgdon designed furniture for his home

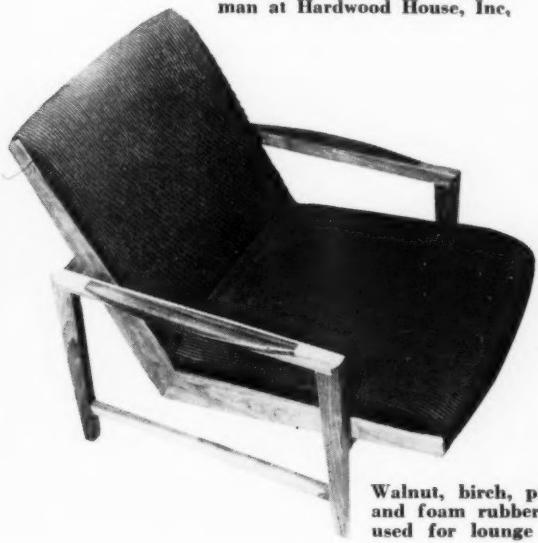
Built-in dining table for a very small apartment



Dining table at far left is shown here fitted into section fastened to wall



Richard Wakamoto is a craftsman at Hardwood House, Inc.



Walnut, birch, padauk and foam rubber were used for lounge chair



By NEDAVIA BETHLAHMY and GEORGE BARR

U. S. Department of Agriculture

U. S. Forest Service

Pacific Northwest Forest and Range Experiment Station

RUN
BULL

(Figure 1) For many years Bull Run Lake served as the sole mountain reservoir for city of Portland, Oregon



W A T E R S H E D



THIS is a watershed story; an account of how one city in the United States gets its water. It is of interest to foresters because water has always been considered a primary forest product. As long ago as 1897, Congress declared that forest reserves would be established to secure favorable conditions for the flow of water. Since that date many national forests have been established to maintain water flows, and many cities depend on these forests for their life-giving waters.

In the Pacific Northwest, Portland is one of the many cities whose existence is linked to a good source of water within national forests, and whose future growth is inseparably connected to the continued maintenance and development of this source.

In the beginning, Portland was served by a private concern, the Portland Water Company, which obtained water from wells, creeks and then from the Willamette River. Water mains at that time consisted of hollowed logs. Then in 1887, the city purchased the holdings of this company, and hired Colonel Isaac W. Smith to seek another source. Colonel Smith reconnoitered several areas east of Portland, and finally recommended that the city draw its water from the Bull Run River, a stream which originates in the western slopes of the Cascade Range.

At first this recommendation was not accepted. A controversy arose as to the source of the water flowing in the Bull Run River. Some maintained that glacial streams from Mt. Hood fed the river, and that such streams, because they contain large amounts of sediments and other foreign matter, are not suitable for



(Figure 2) Forest cover is virgin timber, consisting of overmature Douglas fir from 400 to 600 years old

a water supply source. The controversy finally ended when Frank Dodge, then superintendent of the Water Bureau, proved to the satisfaction of everyone concerned that the Bull Run River did not originate in Mt. Hood glaciers; that a ridge separated the Bull Run watershed from Mt. Hood, and that consequently seasonal snow melt and rainfall were the sources of all its runoff. Photographs taken by Frank Dodge ended the controversy, and in 1891 Bull Run River was finally selected as the future source of water for Portland. Four years later, Portland had its first taste of Bull Run water.

As soon as the city of Portland decided to draw water from the Bull Run River, the federal government enacted legislation to protect the river's source. In 1892 President Harrison created the Bull Run Reserve; and six years later the source of this water was further protected by a federal law prohibiting trespass to all persons except federal and city officials whose duties require them to enter the area. This law also specifically forbids all grazing and provides severe penalties for transgressors. A few years later (1908) the Bull Run Reserve became a part of the Oregon National Forest, which in turn was renamed (in 1924) the

Mt. Hood National Forest.

In the meantime, the city of Portland continued to grow, and the need for more water had to be met. The first conduit, built in 1895, had a capacity of 25 million gallons per day (MGD). In 1911 and again in 1925 additional conduits were built with capacities of 50 and 75 MGD respectively; and finally in 1954 a fourth conduit, with a capacity of 100 MGD, replaced the first one built sixty years previously. Thus, the city now has three conduits with a capacity of 225 MGD, and serves a total population of 570,000, with an average daily consumption during 1956 of 95 million gallons.

Far in the uplands of the Bull Run Reserve is the magnificent Bull Run Lake (Figure 1), which for many years served as the sole mountain reservoir of the city. The lake originated in glacial times when glaciers scoured deeply and deposited large amounts of debris in Bull Run canyon. The debris effectively plugged up the broken lava bedrock, so that when the glaciers receded, a natural "glacial lake" formed. By sealing this natural barrier with concrete, the city's Water Bureau was able to increase the storage capacity of this lake to approximately 3 billion gallons.

As the city grew in population, storage capacity in Bull Run Lake became totally inadequate. Finally, in 1929 Portland built a 200-foot-high gravity dam which created a lake extending 3.5 miles up the Bull Run River with a total storage of 9 billion gallons. A quarter of a century later, 8-foot vertical-lift steel gates were installed, which increased the storage by an additional billion gallons. In the near future, an additional dam will be built to create a third storage lake; and a road is being built to the Bull Run Lake so that modern methods may be used to improve its effectiveness as a storage reservoir.

Bull Run watershed occupies an area of 102 square miles on the western slopes of the Cascade Range. Although the topography is steep, it is relatively gentle in comparison with the mountainous Cascades. Elevations range from 748 feet to a maximum of 5,100 feet.

Basalt and andesite underlie most of the watershed. These rocks belong to three geologic formations resulting from many volcanic eruptions: Cascade andesite and rhododendron and Columbia River basalts. The latter formation, which is the oldest, dates back to Miocene

(Turn to page 62)

is
ng
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old

A fire starts on farm of Mr. and Mrs. Clyde Hasten of Arkadelphia



On walk with Mrs. Hasten, Blackie scents the blaze and races to attack fire



By "lapping up" the fire without burning himself, he extinguishes the flame

This two-year-old cocker acquired the fire suppression talents on his own

FIRE FIGHTIN' DOG

A FRISKY cocker spaniel named Blackie may never rival Smokey, the fire preventin' bear in popularity, but he has shown that a dog can be the forest's as well as man's best friend.

Blackie is a forest fire suppression dog. He will extinguish matches, cigarettes, cigars, and will even put out fires in leaves, pine straw, etc. These fire suppression talents he acquired on his own, with no previous training given.

How he is able to lap-up flames without burning himself is a secret he has managed to keep to himself.





Assistant forest warden explains forest fire protection system to Pennsylvania teachers

SCHOOL teachers are considered important people these days. The nationwide concern over their welfare is a reflection of this. Ichabod Crane and Mr. Squeers are gone forever from the classroom. In part this is because today's teacher is a well-educated person. If she is of the younger generation she is almost certain to be a college or university graduate. More often than is generally appreciated she should, if she were less modest, boast of her Master's degree as well. She is well-versed in the art of persuading your Johnny and Susan to learn what they need to know to live in this day and age.

She is also at home in many of the academic areas of knowledge.

All too often, however, the modern teacher is uninformed about a lot of things that some of us consider important. She just can't know all about everything. She is likely to be a city girl with little understanding of the world beyond the classroom walls and city streets. Often she has had very little experience with the natural environment out beyond Suburbia. An actual example may illustrate this point. Until recently we had on our campus a lonely apple tree. When taking our sophomore biology students—future

elementary school teachers—on a short field trip we used to ask them to identify it. We were chagrined to find that most of them did not recognize it unless it had apples on it. Some weren't too sure even then. Nor could they identify the eastern cottonwoods, American elms, and black maples on the quadrangle. The few specimens of hemlocks, cedars and pines on the campus were merely Christmas trees to these prospective teachers.

To the typical student in our classes conservation was a term in an encyclopedia, an assignment in a textbook, and a few lectures by a professor. Soil erosion seemed to be something about which somebody in Washington was worrying. The student as we found her was unconcerned about the need for improving our forest resources, protecting and managing our wildlife, and keeping our waters clean and usable. She was unaware of these and similar problems except in a vague and academic way.

Fortunately we have on our faculty a number of professors who, although they know their way around in an ivory tower, are quite happy when they have a little mud on their boots. They believe strongly that the education of any person, and

(Turn to page 60)





Group at Coweeta Hydrologic Laboratory listens to talk on the relationships of forests and streamflow



The influence of soil depth on runoff from forest land is shown to group at Coweeta



Some students learn about conservation, but many do not as school teachers are uninformed on the subject

Forester Bill Hagenstein conducts regular tours of industry woodlands for Portland, Oregon, teachers



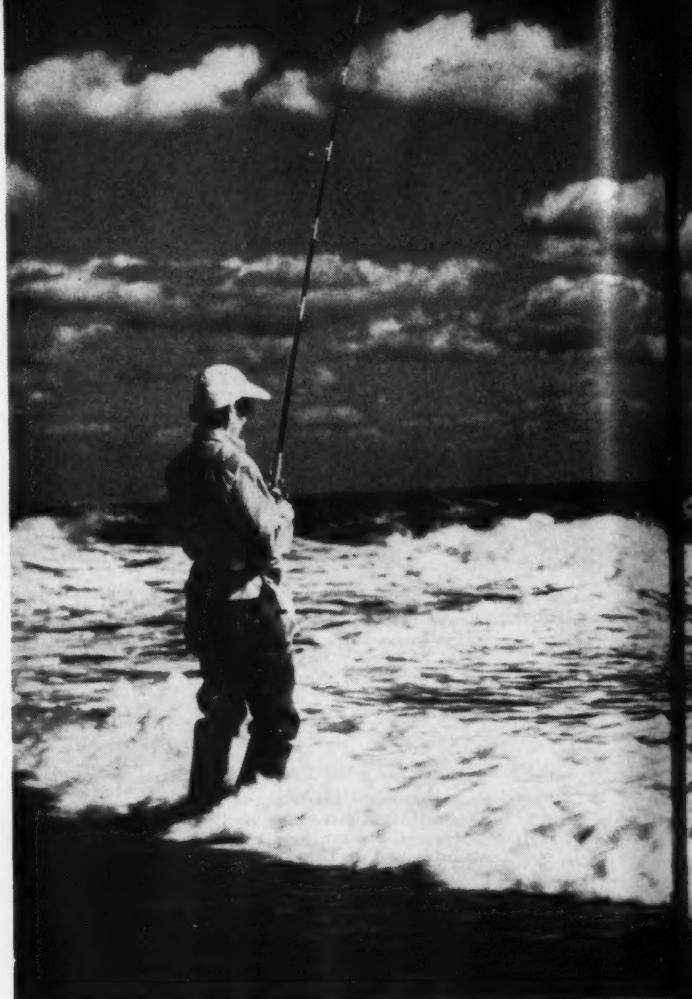
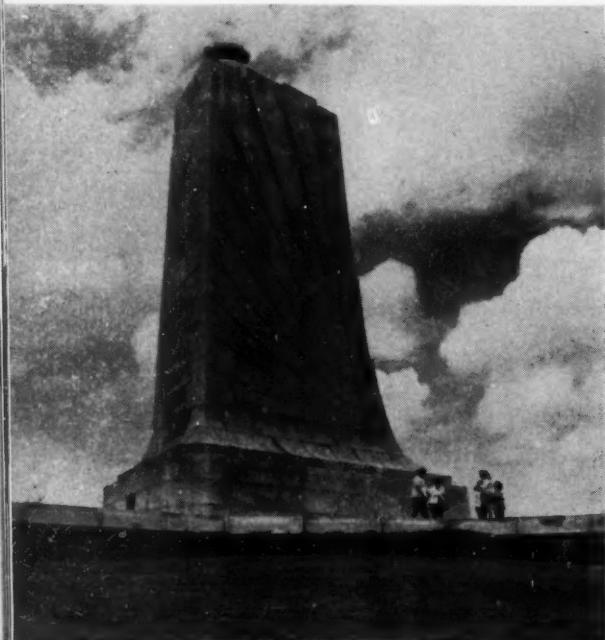
By DR. JOHN URBAN
*State University of New York
College for Teachers
Buffalo, New York*

“SOMETHING OUGHT TO BE DONE...”



Angler tries for channel bass on the new Cape Hatteras National Seashore

Wright Memorial marks site of first powered plane flight at Kitty Hawk



Those mysterious

By B. G. ROBINSON

TIRED of visiting the usual tourist spots where everything is a little too commercial and super-organized? Fed up with that annoying sameness that characterizes many over-crowded, under-staffed vacation camp-sites?

Want to really "get away from it all," where you can do as you please — fish or hunt, explore or loaf, as the mood strikes you?

Then North Carolina's far-flung, justly famed "Outer Banks" were made to order for you — possess all these fascinating attractions, plus many more. These curious natural formations form a barrier of sandy islands intercepting the broad sounds and river mouths along the northeastern area of the Tar Heel State's 300-mile coastline.

Through centuries of turbulence,

shipwreck and isolation they have developed a culture of their own. First settled by the English in the 1580's, and the last to become accessible by paved highways, these lonely outposts of civilization have been inhabited since the 18th century by seafaring folk, or the descendants of pirates, who were isolated from the mainland until the 20th century.

Historically these dunes have known such great names as Virginia Dare, the first English child born in America. . . . Sir Francis Drake, adventurer and explorer. . . . Blackbeard the most notorious pirate of them all. . . . Stede Bonnet, English gentleman who turned pirate. . . . the Wright brothers who made the first power-propelled airplane flight at nearby Kitty Hawk.

Nonetheless, the banks have re-

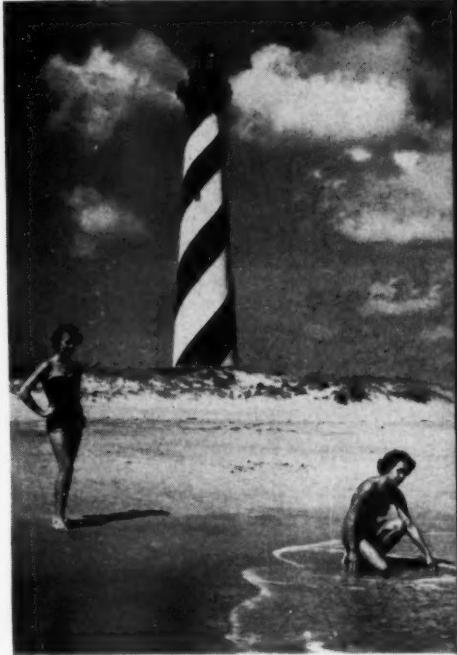
tained much of the quiet, primitive charm, which so intrigued Sir Walter Raleigh when he landed his colonial expeditions there, and 300 years later when Orville and Wilbur Wright chose one of them as the base for the first mechanized heavier-than-aircraft flight.

But time changes all things, and the past fifty years, especially the past decade, has seen the Outer Banks become one of North Carolina's outstanding resort centers. The rapid transition is being precipitated as an ever increasing volume of vacationists discover their beautiful seascapes, picturesque villages, excellent fishing and hunting, and splendid bathing beaches.

A modernization program is under way, modern hotels and motor courts are springing up rapidly. Paved



Cape Hatteras Lighthouse, built in 1869, is the tallest brick lighthouse in country



ON US outer banks

highways and free ferries afford access across inlets and sounds.

Approximately 70 miles of beach will remain open permanently to the public and without commercial development. It is an important segment of America's first seashore park—the Cape Hatteras National Seashore Recreational Area. However, there are still vast stretches of beach between Cape Lookout and the Virginia line where one may walk for miles and miles and encounter only shore birds and surfcasters.

Geographically the Outer Banks range in size from a few hundred yards to several miles, and are divided by numerous inlets to the sounds.

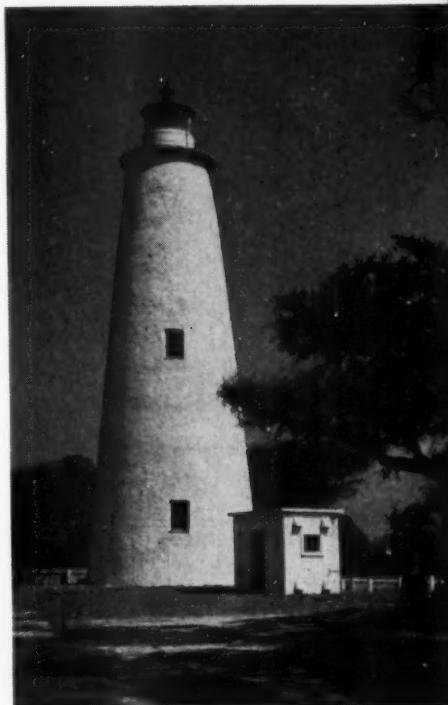
With the exception of Currituck Sound at the northern extremity of the string, the sounds are bodies of

salt water. Here, strangely enough, the water is only slightly brakish, making it a natural concentration point for fresh water, large-mouth bass, migratory ducks and geese in great abundance.

Fifty miles away is mysterious Hatteras Island, which juts farther east than any of the other Outer Banks, and Cape Hatteras near the southern tip is within a dozen miles of the Gulf Stream.

Warm winds from this ocean phenomena temper the climate here so much that citrus fruits grow with almost tropical lushness at Buxton. And in the bland waters off Hatteras, both northern and southern species of game fish are found, giving the area the fitting designation of "Gamefish Junction."

(Turn to page 56)



The Ocracoke Lighthouse is another famous lighthouse that guards the N. C. coast



Klamath Marsh is one of the last remaining pristine marshes in the U.S.

By WILLIAM B. MORSE

*Field Representative
Wildlife Management Institute*

LAND OF THE WOCUS

K'MUKAMTCH, old man of the ancients, creator of world and mankind, gazed fondly upon his children as they prepared for the long winter. The braves hunted ducks and the women gathered canoe loads of wocus from the productive waters of their beloved home marsh. It was truly the land of the wocus.

Little did K'mukamtch and his children know that this very winter of 1843 would end their world as they knew it. Soon Captain John C. Fremont and his expedition would move South to reach their marsh by early December, and while the marsh, called Eukshi, would change but little, the way of life of the Klamath people would change forever.

Klamath Marsh was a vast area of about 90,000 acres. However, the permanent deep water portions of the marsh were probably close to

According to Public Law 587, still undeferred in the House, Klamath Mar

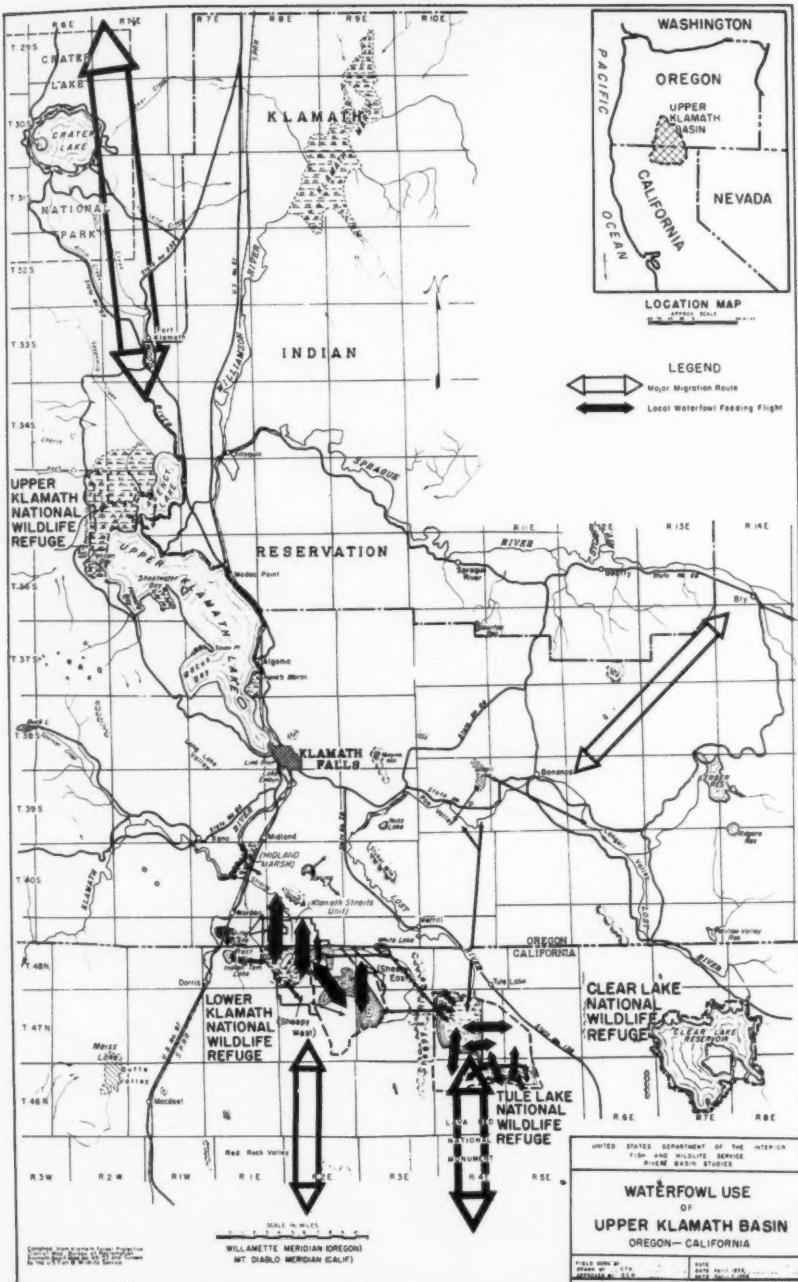


their present size of 17,000 acres and it was along the high ground to the east that most of the Klamath people lived and based their culture. The culture was not advanced, but like any self-sufficient hunting and gathering society, it was in complete tune with its environment. The marsh and Williamson River provided fish—the suckers, trout, and salmon. The land provided small game and deer. The marsh provided ducks and geese for the hardy hunters, and it also gave wocus. This seed of the yellow pond lily was to the Klamath people what rice is to the Orient. It was gathered by the women in dugout canoes, dried and stored in great windrows as high as four or five feet and, in good years, several hundred feet long. Ground and roasted, it was the staple of their diet, and even today two long bays of Klamath Marsh are known as



Little Woeus Bay is one of two long bays of Klamath Marsh

together with Klamath forest lands, must be sold



Klamath Marsh is one of the best breeding areas for waterfowl in Pacific Flyway

same wucus and hand-stemmed bulrushes which he knew so well. He would not recognize the white-faced cattle on the edge of the marsh, but he could soon see why the marsh edge was so barren as he watched them graze. The ducks and geese would look the same and, if he went far out in the marsh, it would be as though nothing had ever changed.

A big marsh is like that, a primitive pristine place; if the water remains, the marsh remains—especially a marsh like Klamath. Within the reservation since 1864, and off the highway and railroad, it is today relatively unknown even in the state of Oregon although it is one of the largest native, inland marshes remaining in the United States.

What is 17,000 acres of excellent duck marsh worth? No one as yet has set a value, but if we compare the cost of acquiring a big existing marsh with the money it takes to buy land, bring water and develop a new marsh, the cost of an existing marsh looks small.

Public Law 587 says that the Klamath Marsh, together with the forest lands of the Klamath Indian Reservation, must be sold and the money given to the Klamath Indians. Much discussion in Congress, the press, timber and other conservation circles has started. Much has been said about the fine ponderosa pine timber on the reservation, and the desire of most people to continue a sustained yield program on that timber. Not enough has been said about one of the last remaining pristine marshes in this country. Yet Klamath Marsh is every bit as important economically as any equivalent piece of forest land on the reservation, and is probably more valuable. The dollar and cents sign is just not hung as visibly on a marsh as it is on a tree.

Klamath Marsh is one of the best breeding areas for waterfowl in the Klamath basin, even in the whole Pacific Flyway. Brood counts show large numbers of ducks and geese nesting and rearing their young here. Species nesting are the Canada goose, redhead, ruddy, mallard, gadwall, cinnamon teal, and pintail. Heaviest production is of the geese and diving ducks which can nest out in the marsh. Lack of peripheral cover reduces the produc-

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Wucus and Little Wucus Bays.

Only a few of the old people still gather wucus. The taste for easier white man's foods eliminated the custom along with the old ways and the old names. Only remnants of the old culture remain in ethnological reports and researchs of interested residents of Klamath Falls, Oregon. The old culture was a delicate, transient thing, living almost for the moment. Tribal custom prohibited

mentioning the name or deeds of the dead. No mighty legends or deeds of great chiefs are passed on.

If a brave of one hundred and twenty years ago were to return to his village site near the marsh, it would look much the same to him. He could pick out his house pit, where with a covered cone of willow poles and bark he could still smudge the mosquitoes away. The marsh vegetation would contain the

By WILL BARKER

THEY'RE TRYING TO SAVE THE SHAD

Shad is native to North Atlantic, but has been introduced to Pacific coast



ACH spring shad once swarmed up Atlantic rivers from the Manzanas in Florida to the rivers of Maine. Today, due to various factors including overfishing, obstructions and pollution, the shad is gone from many of its ancestral spawning grounds and is much less abundant in others. Recently, however, small runs of this bony but tasty fish have been re-established in various East Coast rivers such as the middle Connecticut and the Merrimack or maintained in the Hudson. And in a few rivers, such as the Ogeechee in Georgia, runs, though endangered, continue as before.

The shad (*Alosa sapidissima*) is a member of the herring family. Although it is native to the North Atlantic, this fish has been introduced on the Pacific Coast, where it is now a fish of commercial importance. Blue-green above and silvery white on the sides, this deep-bodied food fish weighs anywhere from $2\frac{1}{2}$ to 14 pounds at maturity. It is an anadromous fish — one that starts life in fresh water, matures at sea, and returns to fresh-water streams to spawn. Unlike the salmon of the Pacific, the adult shad do not normally die after spawning. If these fish survive natural and fishing hazards, they return to spawn in ancestral rivers in successive years. During the spawning period the female usually deposits about 30,000 eggs. The young shad stay in the river until October or November, attaining a length of 3 to 5 inches, and then migrate to the sea, where they stay until they reach sexual maturity—3 to 6 years—at which time they re-enter the rivers to spawn.

Along the Eastern Seaboard shad come to Florida rivers in November; to the rivers of Georgia as early as January first; and to the Potomac in February — a date somewhat earlier than the one noted by George Washington when he lived at Mount Vernon. On April 20, 1787, Washington wrote in his diary, "The shad began to run today."

Shortly after shad are seen in the Potomac they start up the Chesapeake, the Delaware, and the Hudson. In this last river the run usually begins the last week in March and ends the first week in June. Here, gill nets are used, with a mesh measuring $2\frac{1}{8}$ by $2\frac{1}{8}$ inches. Both the fish and the roe are marketed in New York City. A few days or weeks after the Hudson run starts, as spring works its way northward, the shad ascend the rivers of the New England states.

In 1896 the commercial yield of Atlantic-Coast shad reached a peak of 50 million pounds. From that year the yield declined steadily, until, by 1946, the yield was about 14 million pounds. The most recent figures available from the U. S. Fish and Wildlife Service are for 1954. They show the catch to be:

	Dollar Pounds	Dollar Yield
Total for the		
United States	10,202,000	\$1,590,000
Atlantic Coast	8,668,000	1,468,000
Pacific Coast	1,534,000	122,000

Alarmed by the constant, continued decline of this valuable food fish, the Atlantic States Marine Fisheries Commission initiated action, which resulted in a special Congressional appropriation for a six-year study of shad in the Atlantic Coast States. A study was begun in 1950, with the U. S. Fish and Wildlife Service as the primary research agency.

Basic purposes of the investigation were to discover the underlying causes of the decline, to determine conditions favoring recovery, and to provide basic information for scientific management of the shad fishery to obtain maximum sustained yield. Due to lack of funds and insufficient personnel, a simultaneous study of all the major shad runs was impossible. Work began on the Hudson River in the spring of 1950 and was continued in 1951.

The Hudson River study showed that there was no correlation between shad production and stream flows, water temperatures, channel improvements, ship traffic, or hatchery operations. There was no evidence

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MORE and more frequently along the highways of the nation you will see a neat green-and-white sign reading: "Tree Farm." Maybe there will be no trees at the roadside, but off behind the farmhouse or the green field beyond you may see some healthy little patches of woods. Also, you may observe, the whole area seems to be a little neater and better-kept than the places of some of its neighbors.

The "Tree Farm" sign indicates that here dwells a member of a unique voluntary forestry group, consisting of both individual farmers and of timber-owning organizations, dedicated to the growing of wood on tax-paying land under a planned program. In other words, this man has privately owned woodlots that grow repeated crops of trees for sale.

"Well, what is so new about that?" you may ask. "Isn't that what a lot of us have been doing for some time?"

Yes and no. Back in pioneer days trees were considered "a drug on the market"—something to be cleared away to make more farm land. What couldn't be used or sold was burned off. While later generations took a longer, more realistic view of the

value of timber, they still thought the woods took care of themselves.

Finally, we all know what happened—wood removal far exceeded growth. We were confronted with the prospect that either the nation's forest resources would be wiped out, or we would have to curtail lumbering so drastically that it would be necessary to import increasing quantities of wood, at whatever price the seller demanded. The Capper report in 1922 and the Copeland report in 1932 both showed our forest balance in the red, and the gap between growth and cutting slowly widening.

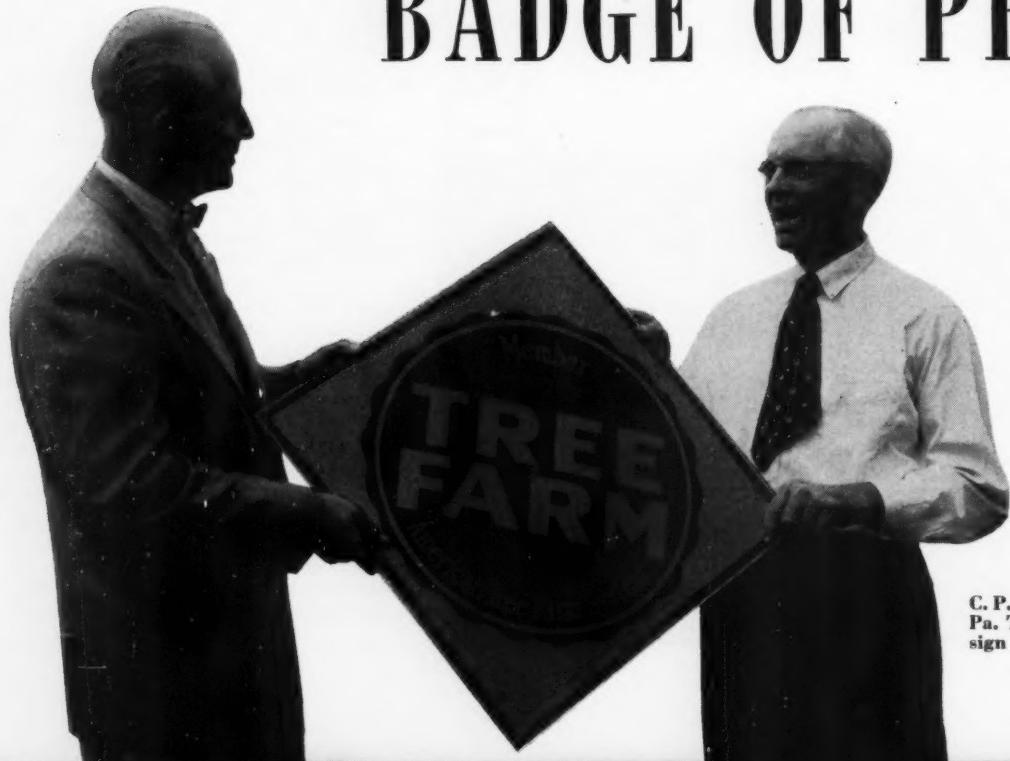
Government and industry were well aware of the seriousness of the situation. Fortunately, effective steps were taken to reverse the trend. But for some time there was a missing link in what was otherwise a promising chain reaction to insure both present and future generations the timber they would need.

The real forgotten or overlooked man was the small farm woodlot owner, those with holdings under 500 acres. Yet there were more than 4 million of him; he owned nearly half the nation's commercial forest land, and the market value of his forest products—ranging from saw-



By E. JOHN LONG

BADGE OF PRIDE



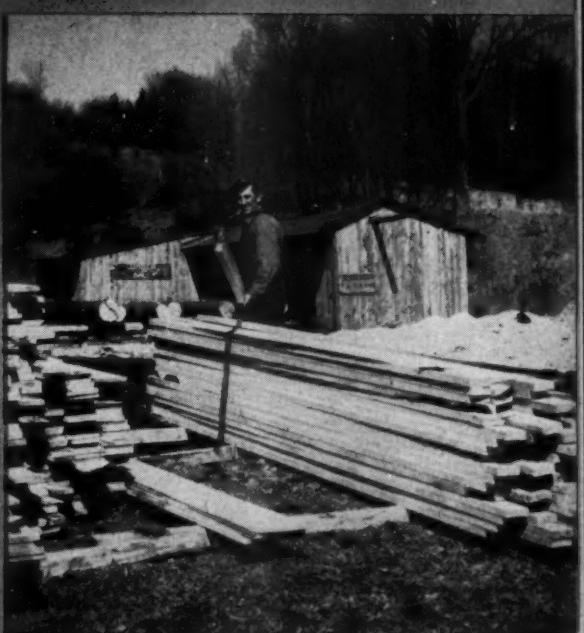
C. P. Shull (l.), member of Pa. Tree Farm Com., gives sign to William B. Robson

Tree Farmer Floyd DeGolyer views selectively cut area

The American Tree Farm System is now organized in 45 states with 10,043 members



From left, Dr. Wilson Compton, Mrs. Charles Clemons, widow of pioneer logger, and J. P. Weyerhaeuser, at tenth anniversary program



G. A. Perez, right, chairman of the New York Tree Farm Com.



This roadside sawmill in N. Y. State is operated part-time by farmer

For the small woodland owner Christmas trees are a good cash crop



Firewood is a crop on
Tree Farm of Paul C.
Baker, New York State

Tree Farmers across
the country find earn-
ings on small woodlots

Tree Farming advice
is to cut mature and
defective trees on lots

In order to qualify for
Tree Farm sign, certain
requirements must be met



logs, pulpwood, posts, turpentine, firewood and Christmas trees—was about \$700,000,000 a year. Because his timber was more or less a sideline to the raising of other farm crops, he didn't seem to feel that he could fit into any forestry conservation or industrial plan, or even any broad incentive program.

It was a small town editor who proved to be the catalytic agent between the woodlot owner and the wood-using trade. In 1941, Chapin Collins, in the editorial columns of his *MONTESANO VIDETTE*, of Montesano, Washington, offered the term "Tree Farm" to a lumber industry seeking a better way of telling its forest management story to the public, and the American Tree Farm System was born.

The first Tree Farm was dedicated on June 12, 1941, near Gray's Harbor, Washington; and in the following year state-wide programs were inaugurated in Alabama, Arkansas, California and Oregon. Other states launched similar programs in rapid succession. In the West, Tree Farms are administered by the California Redwood Association, the Industrial Forestry Association and the West-





(Left) District Forester Orville Haile discusses the harvest of cedar posts with Tree Farmer Peterson



Sheriff's posse was part of 10th anniversary celebration of Tree Farm program at Montesano, Washington

ern Pine Association. Elsewhere state Tree Farm Committees, composed of industrial and other foresters, supervise selection of Tree Farms.

At the outset it was decided that while every tax-paying woodlot owner was eligible to become a member, certain standards would have to be met before a farmer or an organization could hang out the "Tree Farm" shingle. No property is certified as a Tree Farm until it has been inspected by a professional forester, whose services are provided free of charge to the landowner.

In fact, there are no dues or assessments of any kind connected with Tree Farm certification, but there are three basic qualifications. The woodland must be: (1) privately owned and tax paying; (2) maintained for the growth and harvest of commercial timber crops; and (3) protected from fire, insects, disease and destructive grazing. Also, cutting of wood should be done in such a manner as to insure repeated crops of marketable trees.

As everyone in the forestry business knows by now, this voluntary Tree Farm program, sponsored by the American Forest Products Indus-

tries, Inc., representing the nation's wood-using organizations, almost immediately struck a responsive note, not only with small woodlot owners, but also with outfits holding taxable industrial or organizational (churches, Odd Fellows, Elks, etc.) forests. In the first year (1941-42) the number of Tree Farms signed up was 441, embracing 5,276,668 acres. Subsequent growth has been at a slower pace, but steadily upward. May 1957 membership roles showed 10,043 members, with holdings totaling 42,049,971 acres, in 45 states.

These are quite impressive figures. Gratifying also is the latest overall chart of the contest between forest removal and forest growth. Since 1945-46, forest growth exceeds removal, and this healthy trend continues. Many other factors, of course, helped to bring about this happy situation; but Tree Farms with about a tenth of all acreage classed as commercial forest, undoubtedly contributed a good share and continue to do so.

Take, for instance, the case of a Southern pine tree farmer who reports \$4,500 from sales of forest products from his woodlot. He became interested in tree farming sev-

eral years ago when erosion forced abandonment of a hillside cotton field. When the abandoned land grew up with seedling pines, he found a ready market in pulpwood. He still has a stand of 10,000 board feet of sawlogs to the acre.

Tree farmers Carl and Rita Bretscher, of Route 2, Springfield, Illinois, figure their social security is growing in trees. In 1946 the Bretschers bought a 58-acre woodland. They prepared a management plan to insure permanent timber production for 20 acres of native hardwoods, and planted 18 acres in pines. They are now selling Christmas trees from thinnings in the pine plantations.

"Our retirement estimate is based on rotating crops of red, white, jack and scotch pine on the 18-acre plantation," Mr. Bretscher said. "The first large batch of 4,000 marketable Christmas trees will be cut next year. Under intensive cultivation, and with new seedlings planted when a crop is harvested, tree crops will grow continually." The Bretschers believe the annual yield from rotation pine tree crops will equal the yield from \$500-an-acre cornland.

A Northeastern tree farmer has
(Turn to page 50)



"Plant 'em thick and thin 'em out as they grow," is the advice of Mississippi Tree Farmer Marshall Rivers, shown here with his son. These pines were hand-planted by Mr. Rivers.

These Maryland students are absorbed in study of forestry, using educational materials from AFPI



WHAT DOES AFPI DO?



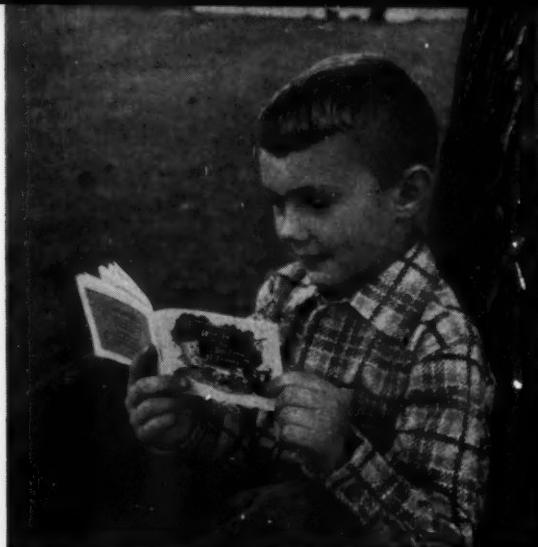
Charles A. Gillett is managing director for this organization



Forester-artist W. F. Struck is designing "Keep Green" posters



Forester John Witherspoon checks a chart for Scout patrols



Youngsters enjoy the comic booklet "Woody and His Tree Farm Friends," one of the many educational items published and distributed by AFPI

There are some recreational facilities on a Tree Farm of the Minnesota & Ontario Paper Company at Bass Lake



WHAT DO YOU THINK AFPI DO?



Assistant managing director James McClellan studies Tree Farm progress

AMERICAN Forest Products Industries, Inc., better known from coast to coast as AFPI, is a busy organization.

It represents all segments of the wood-using industries in the United States in two common objectives:

1. To encourage private timberland owners to grow timber as a crop.
2. To create a better public understanding of the forest management activities as carried on by the forest industries and other private landowners.

Through a broad program of forest industry public relations and

(Turn to page 66)



Forester Harvey Frantz, left, helped Attorney Charles M. Bolich, right, administer his project

Lawyer with an Evergreen

EVER since Attorney Charles M. Bolich of Allentown, Pennsylvania, launched his drive to replenish forestry resources in his section of the Quaker State, the woodlands in his area have felt a Midas touch—a "green Midas touch."

This one man of the law has been responsible for the planting of al-

most a half million state tree seedlings in Lehigh County, Pennsylvania, during the last three years—more than all other individuals and groups combined. This is all the more remarkable in view of the fact that from 1912 to 1955 there were only slightly over three million state tree seedlings planted in that county in total.

Attorney Bolich's system has been one of action. While communities or groups dabbled and quibbled with ideas of replenishing forestry resources, Bolich took master strokes and got green results.

When and how did this all start? The story of the lawyer with the "evergreen thumb," as he is called, had its beginning in the spring of 1955, when Attorney Bolich gave his first trees, 18,000, to David A. Miller, president of the Allentown Call-Chronicle Newspapers.

The move naturally got publicity, but Attorney Bolich wanted to give more than a mere 18,000 since the donation was not intended as a

stunt. His aim was replenishment, so he said he would give away a million seedlings. He would have said five million, or more, except for one thing. It would be hard to convince people that they were actually getting something free.

But group after group took him up on his plan until more than 100 were on the bandwagon. His only stipulations were that the recipient be interested in and capable of caring for at least 500 seedlings. And the only line he drew was against front lawn decorations.

In addition, the number of trees he has planted on his own properties has pushed his efforts in renewing trees to well over a half million.

Since there were no financial strings attached, cities, churches, schools, scout troops, 4-H clubs, fish and game and conservation groups, and individuals joined in. Bolich completely shouldered the cost of purchasing seedlings from state nurseries at \$6 per 1000, even paying shipping costs.

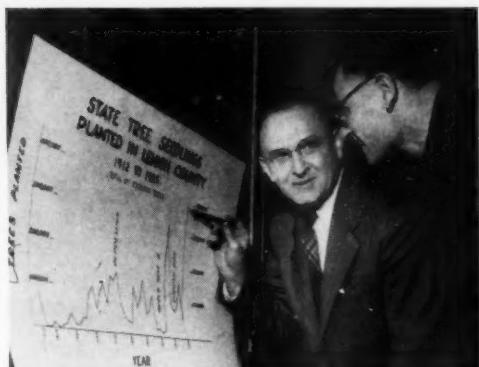
At Penna. Farm Show, Mr. and Mrs. Bolich (l.) discuss Tree Farming with Mr. and Mrs. Harold Barnes





Penna. Secretary of Forests and Waters, Dr. Maurice Goddard, left, had only lavish praise for work of Mr. Bolich, right.

District Foresters H. A. Spangler (left) and Paul Felton (right) note rise in seedlings planted. Mr. Bolich has donated almost a half million of these.



On the parkway along the Little Lehigh River, the city of Allentown has planted some of the 45,000 seedlings given by Mr. Bolich.

Seedlings received from Mr. Bolich that the city couldn't plant immediately, were nursed at this greenhouse in Gen. Trexler Park.



ever Thumb

By ERNEST A. SCHONBERGER

Bolich's achievements in spreading conservation more widely among these groups indicates what one man, anywhere, can accomplish when not hamstrung by half-hearted efforts. The trees he has given away cover more than 400 acres. If every county in Pennsylvania had a "Bolich," there would be some 25,000 additional acres in the state planted solid with seedlings, just since 1955. This acreage is estimated to be about equal to all state tree seedling planting done in the Keystone State over the same period—a period which has seen a general increase in state reforestation.

If his three-year reforestation project were extended over the nation, a million additional acres would have been planted in seedlings during that time. Its very magnitude in national terms points up the progressive, result-getting approach that Attorney Bolich and his evergreen thumb give to the conservation of forestry resources.

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"Tree planting is our national sport," says Mr. David Ben-Gurion, Israeli Prime Minister

AFFORESTATION IN *Israel*

By SINAI LEICHTER, M.A.

A FEW years ago, when a landless people started returning to their treeless native land, a Christian minister came along the road from Tel Aviv and watched some Jewish pioneers carefully setting out seedlings in the tiny patches of soil among the rocks. Turning to one planter he remarked, "It will take you 100 years to reforest these hills."

"What's a hundred years to a Jew?" the pioneer replied and continued with his work. It was a statement that might be said to mark the underlying philosophy of the entire Israelite reforestation program. For these people plan to stay. And they are planning and planting for the future.

Jews from all over the world contribute to this effort that was first described in the October, 1949, issue of *American Forests* (The Rebirth of Israel by David B. Greenberg). As Mr. Greenberg wrote, "Groves are planted in memory of loved ones and in commemoration of weddings,

anniversaries, and confirmations. Great men of Israel, as well as of other countries, are honored with tree plantings, rather than with statues. The Balfour Forest in the Emek Valley is one example. If this custom were followed in our own country, we would have many more good forests and less bad statuary."

In the present gigantic task of the conquest of the desert, the planting of trees is an objective of primary importance. No wonder that tree planting has become, in the words of our Prime Minister, Mr. David Ben-Gurion, Israel's "National Sport." Even the young people of Israel consider it a pleasant duty to plant at least one tree a year on Arbor Day, which deed, incidentally, is one of the Commandments of the Torah.

In view of widespread interest and support in Israel's planting program, this article, then, might be considered in the nature of a report to interested people everywhere on our progress in Israel. To readers of

(Turn to page 44)

Israelis are eager to cooperate and plant 5 million trees a year



Even the children consider it an honor to plant trees on Arbor Day



Tree planting is important part of gigantic task to conquer the desert



Experiments have been conducted to find best species for the climate



Afforestation generally improves the climate and beautifies region



Eucalyptus seedlings are used extensively for sand dune fixation



For eroded hills in Judea, pine, cypress, carob and oak are best



Tree planting is one of the main sources of employment in Israel



Planting trees is a prerequisite to agriculture in many regions



Afforestation on large scale was started after Israel became a state



Wood Duck Lake is bordered by cypress trees that have been introduced to area



Return of wildlife shows success of the program



By EDNA WARREN

MISSOURI'S

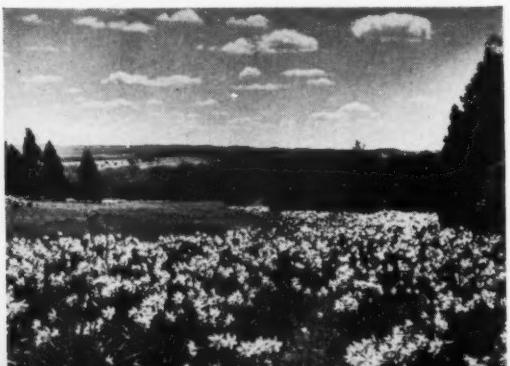


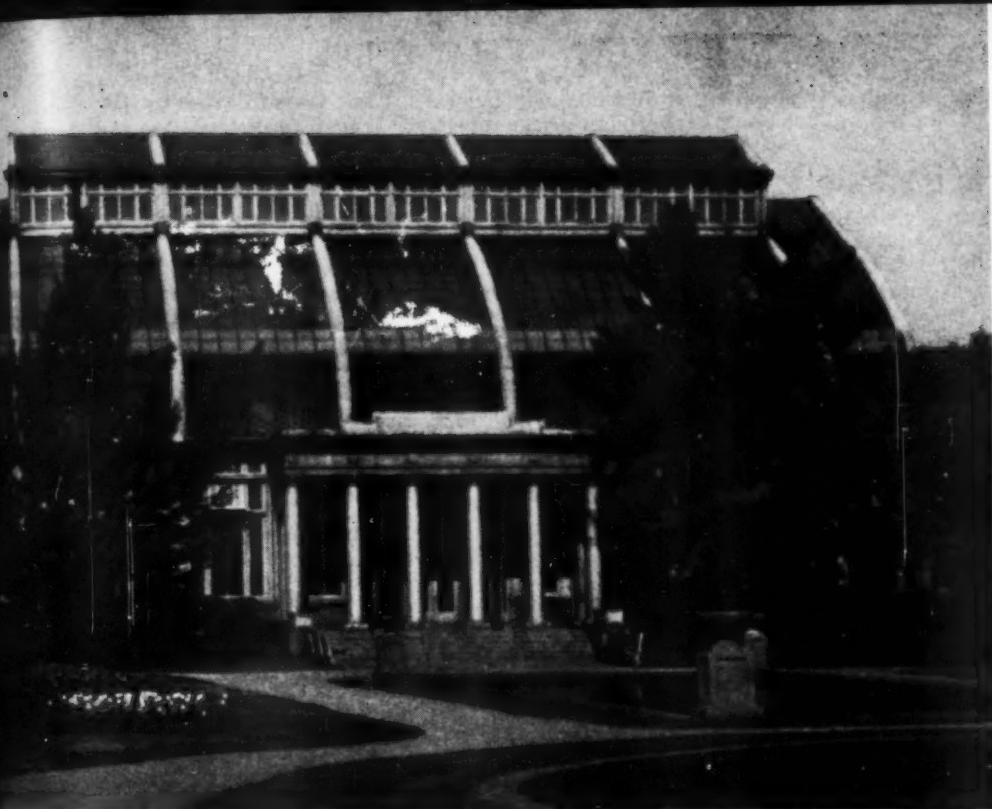
Relationship of plants and animals to their environment is basic restoration plan of Ozark landscape

The arboretum is laid out in a modern design for convenience of visitors who come by car



A million or so naturalized narcissi carpet meadows in spring from March until early May





Deer population has increased from 3000 to 100,000 in state



MISSOURI'S Botanical Gardens

RESTORING a 1600-acre tract of abandoned Ozark farmland to its original landscape as an Indian hunting ground is a project infinitely more complex and tedious than restoring a historical building or even a whole city. Nature is the slowest and most painstaking architect in the restoration business.

Yet for the last 25 years, botanists, dendrologists, ecologists, arboriculturists, foresters and wildlife experts of the Missouri Botanical Garden of St. Louis have been trying to do just that—to work with Nature to restore a landscape that has been completely altered by civilization. There was biological balance in the land when the buffalo roamed there—when the deer and the antelope played. The white man's occupancy destroyed it. Now a clean-up job must be done—burning, bulldozing and chopping away the accumulated rubbish of interloping vegetation. Then must come the patient coaxing back of the original species of plants, trees, bushes, flowers and wildlife.

It was the homesteader's plow that changed the face of the Ozark land-

scape in Missouri from grassy uplands to wooded hillsides. "Open park-like country" the chronicles of DeSoto described it in 1541. In 1803 in accepting the Louisiana Territory, Major Amos Stoddard wrote: "The highlands exhibit more an appearance of extensive meadows than of rude and gloomy forests."

But with the coming of the white settlers, the march of the woodlands began. Within 150 years, the forest clothed the hills and choked the abandoned furrows. Unrestrained by grass fires set by natural causes or by Indians to drive game, the trees spread out from their natural domain along streams and valleys to invade all open land. Wildlife found little sustenance in the new terrain, and most of it gradually disappeared. It was this deterioration of the habitat, and not the slaughter by hunters which depleted America's herds of game, the ecologists say.

A century may be required to complete the restoration. Grass is capriciously uncooperative in retracing its own footsteps. A forest refuses to be pushed around. Wildflowers cannot be whistled back. Immigrant weeds

cling tenaciously to their new footholds. Wind and weather decline to take orders. Wild animals cannot be taught new habits.

It is a pioneer undertaking according to Dr. Edgar Anderson, geneticist and director of the Missouri Botanical Garden. Unlike a ruined city, the vanished flora left no archaeological fragments to chart the restoration, no sketches of the goal to be attained.

"There is no one to tell us what should be done," Dr. Anderson explains. "Methods must be worked

Missouri Primrose or Glade Lily is a spectacular native flower



out as we go along. When we understand natural forces well enough to work with them, we create the intended effect. When we do not understand them, our efforts are nullified or may even be turned against us. If a few individuals of the right species are introduced into the right places, they flourish and increase, but keep bounds. If we make a mistake, they die out altogether or become rampant and mar the picture.

The area, over a mile wide and two miles long, on which the restoration is being made, lies 35 miles

southwest of St. Louis on Highway 66 on the northern fringe of the Ozark Uplift between the Meramec and Missouri Rivers, seven miles from their confluence. Before Englishmen arrived, Spanish and French traders had followed the buffalo and Indian trails that crossed the easy grade between the two rivers. There is little historical data of the area until the first title to part of the tract was patented in May, 1828, but undoubtedly earlier homeseekers had cultivated ground there. That had given civilization more than a hun-

dred years to wreak its havoc on the land before the Missouri Botanical Garden acquired it in 1926.

Although the land was exhausted, the wind blew fresh and clean across the Ozark hills, and it was unpolluted air that the garden needed desperately at the time. The smoke-laden air of St. Louis was ruining many of the species of plants and trees in the botanical collection which its founder, Henry Shaw, had made second only to the famous Kew Gardens of England. Shaw's collection of conifers, once one of the best in the country, had been practically eliminated by the smoke. The growing of the world's greatest collection of orchids in the city greenhouses was being seriously hampered.

Mr. Shaw, who died in 1889, after having his garden opened to the public for more than 20 years, was a farsighted man. He provided for the future expansion of his garden by acquiring extensive real estate holdings at the edge of the city. He did not foresee that all of his property eventually would be surrounded by the city's growth, changing it from a rural to a highly industrialized urban setting. So a portion of the city's real estate was sold to provide for the expansion on a new site at Gray Summit, Mo., far from murky skies.

Eight orchid greenhouses, containing 20,800 square feet of floor space were built immediately, and a 90-acre pinetum was started to meet the dire emergency of the conifer collection. That left a lot of extra land, and little funds. On the south side of the river were 400 acres of bottomland that could still be farmed at a slight profit. The remaining acreage fell into two distinct types.

Cliffs, gravel bars, ravines, river meadows, oak-hickory ridges and forests of sugar and white oak along the Meramec River comprised approximately another 400 acres. This was set aside as a wildflower reservation. The rest of the property, most of it bordering Highway 66, was exhausted farmland, growing up with thickets of blackberries, elm and occasional cedars, interspersed by patches of weed and a little bluegrass on better soil. Few mature trees were found there. All of the fields had been sadly over-cultivated, grazed and burned over.

That was the eroded, scrub-brush background on which the garden experts set out 25 years ago to restore the verdant landscape that once furnished lush pasture for buffalo,

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Doyle Named NLMA Executive Vice President



Mortimer B. Doyle

MORTIMER B. Doyle, 40, of Chicago, Ill., has been elected executive vice president of the National Lumber Manufacturers Association, NLMA president Walter M. Leuthold announced last month.

Doyle comes to the lumber post from his position as manager of Midwest operations of the National Association of Manufacturers. He succeeds Leo V. Bodine, who recently resigned from the lumber association to become a vice president of the Diamond Match Co.

As NLMA's chief administrative executive, Doyle will be responsible for activities of the association's headquarters in Washington, D. C., and its field offices in New York, New Orleans, Chicago and San Francisco.

During ten years service with the National Association of Manufacturers, beginning in 1947, Doyle held a succession of high-level posts. As manager of Midwest operations, he was charged with administering and implementing all NAM plans, programs and policies in the North Central, Central Midwest and South Central regions encompassing more than 4,000 member companies.

Prior to joining NAM, he served in various executive capacities in the communications, advertising and rubber heel manufacturing industries.

Born in New York City, Oct. 15, 1916, Doyle is a 10-year veteran of the Marine Corps, including active duty during World War II. Now a Lieutenant Colonel in the Marine Reserves, he was wounded in action during the invasion of Saipan and holds many service decorations.

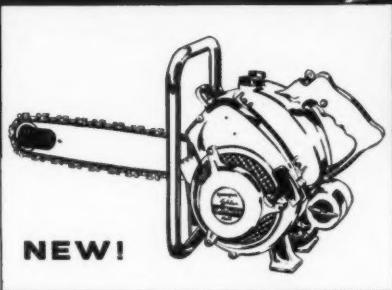
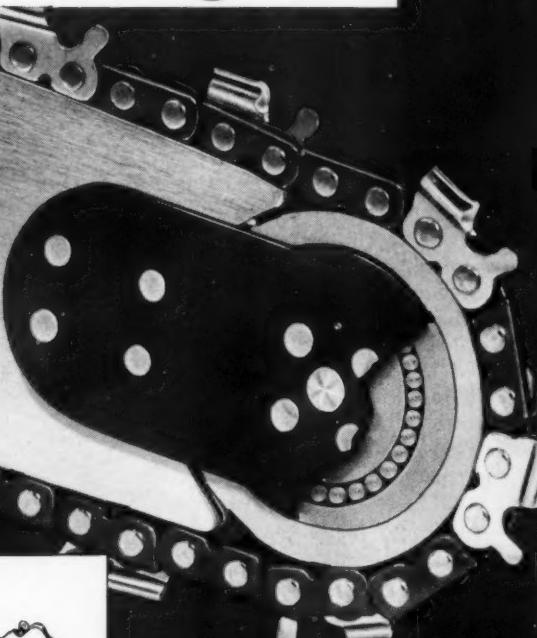
Doyle is a business management graduate, an alumnus of the Industrial War College and a former director of the Dale Carnegie Institute.

He holds membership in the Sales Executives' Club, the Civil War Round Table, the American Management Institute and the American Society of Association Executives. He also is a member of the Illinois Athletic Club and president of the Chicago Chapter of the Marine Corps Reserve Officers Association.

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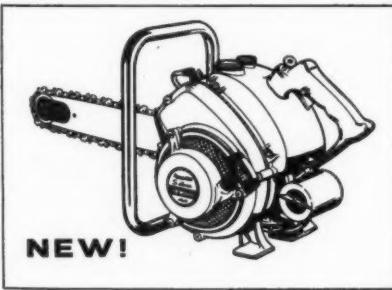
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EARTH WAS THEIR BANKER

The days and years were coins they could not hold,
Unearned, thrust on them, so they spent with ease;
Earth was their Banker and Time was their gold,
A money free as wind among the trees.
Time-given gold without security
Loaned to them by the greatest of all lenders;
They spent these days and years so recklessly
Because they were the greatest of all spenders.
Footpaths the bush and briar too soon defaced
Were their last edifice among these hills;
Now each path is a gully time has traced
Late winter's clean, snow-melted water fills.
Earth has brought them to debtors' discipline
Since they have borrowed more than they could pay;
So helpless, lying there when God walked in
The barren cells of a jailhouse made of clay.

By Jesse Stuart



Photo by B. C. McLean

READING ABOUT

CONSERVATION

DR. IRA N. Gabrielson, President of the Wildlife Management Institute of Washington, D. C., is "retired." Until a few years ago he was Director of the Fish and Wildlife Service of the Department of the Interior. After a long and honored career in the federal government, he was persuaded to take the job he now holds.

Although he was told by his doctor to cut his working time by half, he actually increased it by 50 percent. He travels all over the country so much that his air-miles might rival the busiest pilot.

Increasingly of late Dr. Gabrielson has been trying to get people everywhere to acquire more parks and natural areas for their communities. While he was a government official he bought millions of acres for wildlife. He thinks turn about is fair play, I suppose.

Why has this biologist *cum* bureaucrat *cum* traveling salesman for conservation (who indeed is often referred to as "Mr. Conservation") doubled his work week? Not for material riches, but for spiritual riches.

Which leads me, somewhat round-about to be sure, to the remark he made to me not long ago.

"If the writings of Joseph Wood Krutch were more widely known and taken to heart, it would make my life easier."

And so to the latest book by the author of *The Desert Year* and *The Measure of Man*. The latter won Mr. Krutch the National Book Award for 1955.

Reading *The Great Chain of Life* published by Houghton Mifflin at \$3.75, is a stimulating and rewarding experience. It should be required as part of the engineering and scientific courses in every college in the land.

Noting with sympathetic interest Mr. Conservation's parades around the country to try to save bits and pieces of this sweet land from the

By JACK DURHAM

bulldozer and the concrete and steel boys, Mr. Krutch would say, as he does in his newest book:

"If the earth is still livable and in many places still beautiful, that is chiefly because man's power to lay it waste has been limited. Up until now nature has been too large, too abundant and too resistant to be conquered. As Havelock Ellis once wrote without exaggeration, 'The sun, moon and stars would have disappeared long ago if they had happened to be within reach of predatory human hands.'

Mr. Conservation would enjoy the poetic license of the literary man, and he would certainly agree with the continued observation by Mr. Krutch:

"Such predatory human hands have exterminated many kinds of living creatures and rendered many a flourishing acre barren—but not so many as they would have destroyed had the reach of the hands not been limited. Our numbers and our ingenuity have been growing at a prodigious rate. We may not have progressed as far in certain directions as we commonly suppose, but there is no doubt about the reality of progress as far as the power to destroy is concerned. The day is fast approaching when nature's resilience will no longer protect us from ourselves. We are on the point of being able to actually do what for several centuries we have dreamed of doing—namely, 'conquer nature.' And we may be reminded too late that 'to conquer' means to have at least the power to destroy. If the mass of men continue to be what they have been, that ability will be used."

"Even if we should learn just in the nick of time not to destroy what is necessary for our own preservation, the mere determination to survive is not sufficient to save very much of the variety and the beauty

in the natural world. They can be preserved only if man feels the necessity of sharing the earth with at least some of his fellow creatures to be a privilege rather than an irritation. And he is not likely to feel that without something more than the intellectual curiosity which is itself far from being universal today. That something more you may call love, or 'reverence for life,' though Schweitzer's own term *Ehrfurcht* carries a stronger sense of 'awe' than the English word that has been weakened in use.

"And whatever you call it, it is something against which both urban life and some of the intellectual tendencies of our times tend to militate. Increasing awareness of what the science of ecology teaches promises to have some effect upon the public's understanding of the practical necessity of paying some attention to the balance of nature. But without reverence or love it can come to be no more than a shrewder exploitation of what it would be better to admire, to enjoy, and to share in."

Mr. Krutch turns his attention to the teaching of biology in the schools. For many years a teacher himself, at Columbia University among other institutions, he finds that the teaching of laboratory biology encapsulates the teacher and students, smothers them in the dessicated air of the dissecting table, and destroys the aims of the old-fashioned natural history student of the living thing as a living thing. It used to be that field botany and field zoology were taught in the older liberal arts colleges. Today few students, indeed, know anything of such subjects. "Nature study" is often relegated to the lower levels and sometimes thought of as kindergarten stuff.

The great question facing us today, says Mr. Krutch, is what do we want? (*Turn to page 48*)



Shirley W. Allen

Allen Chairman, Michigan Conservation Commission

SHIRLEY W. Allen of Ann Arbor, Michigan, has been elected chairman of the Michigan Conservation Commission.

A forester, educator and writer, Mr. Allen enjoys a national reputation for his long-time work in conservation.

Mr. Allen received his forestry training at Iowa State College, and during his early years worked for lumber companies in northern Minnesota. In 1909, he entered the Forest Service, and for three years worked in various capacities on the national forests in California. He then worked as the extension professor of forestry at the New York State College of Forestry until 1918, when he became a member of the staff of the Forest Products Laboratory.

Forester for The American Forestry Association was Mr. Allen's next position. From 1924-28, his work in advancing the educational work of the association and promoting sound legislation was outstanding. On leaving AFA, Mr. Allen became a professor of forestry at the University of Michigan, and was retired in 1953.

Mr. Allen is an enthusiastic Trail Rider. He took his first trip on the Gila in 1939. In all he has taken 16 Trail Rides.

He has been active in the Society of American Foresters, and served as its president in 1946-47. Mr. Allen is also the author of numerous articles and reports, and his book "An Introduction to American Forestry" was published in 1938.

American Forests it will represent a followup on Mr. Greenberg's excellent article of eight years ago.

The specific climate of Israel is the main factor for the existence of desert lands in various parts of the country. The lack of rain during some eight months of the year causes the destruction of the organic matter in the soil by the hot sun. In the southern areas, where there is very little rain, the hot summer winds (Hamsin) destroy all vegetation; and when the rains come during the winter season, there are no plants to protect the soil and the destructive erosion process usually sets in.

In ancient times most of the hill country of Palestine, both in the Galilee and Judea, was covered with forest trees and remnants of the ancient oaks can still be seen in the hills of the Galilee and the Samaria. These trees would have remained till our times, were it not for the destructive actions of the various peoples who invaded this country. Most of the beautiful oak trees were cut down by these invaders for fuel, and what was left was eaten up by the herds of black goats which were the favorite animals of the Arab shepherds. During the dry season, these shepherds even used to cut down full-grown trees in order to use the foliage as food for their animals and the trunks of the trees as fuel.

Experiments to reforest the country began almost simultaneously with the first stages of Jewish resettlement at the end of the last century. The mandatory government also devoted much attention towards the reforestation of Palestine, often as a means to tackle problems of unemployment among the Arab population. However, afforestation work on a large scale began only after the establishment of the state of Israel, when an average of five million trees are planted every year, while in former years only a small fraction of that number were planted. It may well be stated that all afforestation carried out in Palestine until 1949 was of an experimental character; but as a result of trial and error, the proper methods of planting and the proper varieties of trees were finally discovered. During the first decade of this century, Jews planted olive and almond trees on soils which were only suitable for forest trees. No wonder that these trees died after

Afforestation in Israel

(From page 37)

a few years. Other experiments in planting eucalyptus trees on swamp areas in the coastal plain were more successful. At the same time German settlers planted pine trees on Mount Carmel, Jerusalem and some other localities, which were quite successful.

The Jewish National Fund introduced several new species, trying out local trees as well as varieties from abroad. These consisted of the following: Aleppo pine, Aleppo pine var. Brutia, stone pine, Canarian pine, Maritime pine, Monterey pine, Italian cypress var. horizontalis and var. Pyramidalia, Arizonica cypress, Monterey cypress, Portuguese cypress, Casuarina (beefwood), oak, walnut, pistachio, carob, mulberry, nettletree, tamarisk, tree of heaven, Chinese scholar tree, acacia, poplar, willow etc.

With regards to planting methods, these included the direct sowing of seeds (which was discarded after several unsuccessful experiments), the planting of saplings with or without earth-covered roots; planting of trees in well prepared pits or in long furrows of varying intervals and at different seasons of the year. Experiments were also made to find the proper varieties of trees for the specific districts of Palestine. Some areas were covered with swamps, others with sand-dunes, while the hills around Jerusalem and the mountainous terrain of the Galilee needed a kind of tree which would suit local conditions. In this respect no theoretical assistance from abroad could have helped the Israel forester without his own experience with various types of soil, climate and seeds.

At present the results of the long years of experimentation brought the following conclusions:

- In the mountains and hills of Galilee and Judea the best varieties of trees to plant are the pine, cypress, carob and the oak. In the Negev — eucalyptus, acacia and tamarisk. In the Jordan Valley—the poplar and the willow.
- Experience has shown that planting methods have to vary according to the different districts of the country: In the mountains, trees must be planted in pits and only in some exceptional cases by sow-



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ing the seeds in shallow furrows. On the sand dunes along the coastal plain and in the waste lands of the Negev, saplings or cuttings must be planted in pits.

- c) The density of planting was also a difficult problem and after much experimentation, Israel foresters have come to the following results: In the hill country—200 saplings of pine and cypress trees per dunam ($\frac{1}{4}$ of an acre); carob trees and tamarisks—only 30 per dunam. On the sand dunes along the coastal plain and in the Negev—500 tamarisk cuttings per dunam. In the Jordan Valley—100 saplings of eucalyptus or acacia per dunam.

Although the carob, the pistachio and the olive trees are usually not considered as forest trees, they have been introduced into the afforestation scheme in Israel, mostly because they have been "citizens" of this country since times immemorial and, therefore, have achieved a high degree of immunity against diseases, pests and evil insects. Another reason for the introduction of these

varieties as forest trees is their economic value, since the carob fruit, the nuts and the olives are valuable products for human and animal consumption.

Since the establishment of the state of Israel, hundreds of miles of new roads have been built in the Negev, the Galilee and the hills of Judea. It was found necessary to plant several rows of trees on both sides along these roads in order to prevent the shifting sand dunes from covering them and in order to give the countryside a more comely atmosphere. The main variety chosen for this purpose is the eucalyptus tree which was brought from Australia. This tree has acclimatized to Israel conditions to such an extent that it grows even faster here than in its homeland.

Another form of tree planting are the shelterbelts around the new settlements in the Negev. The purpose of these trees is to protect the village, the vineyards, groves and gardens from the hot violent winds and sandstorms which are frequent in this area. These "wind-breaks" are planted very densely and at right angles to the usual directions of the winds. Such shelterbelts are considered in Israel (as indeed in other

countries), as one of the main factors enabling profitable farming in outlying areas.

To sum up, afforestation in Israel is of manifold significance. Its main advantages can be listed as follows:

- In the hill country, it prevents soil erosion and keeps moisture in the earth.
- Along the sand-dunes of the coastal plain and in the desert areas of the Negev, afforestation is a pre-condition of agriculture. It has been found for example that after only 4 years of tree planting in the sand dunes the soil improves to such an extent that it is possible to grow vegetables.
- Afforestation in all parts of Israel generally improves the climate and beautifies the countryside, providing shade which is so necessary in a semi-tropical and semi-arid zone.
- From the social point of view the planting of trees is one of the main sources of employment, especially for new immigrants during the winter season when there is very little activity in agriculture. Thus the planting of trees helps the new immigrants during their first few years, until their own stretches of fertile soil bear fruit.
- The economic value of tree planting is also considerable. Although the pine trees, grown in Israel, are not very high and cannot be used for making boards etc., the branches and the thinned-out trees provide approximately 20,000 tons of timber, which constitute the raw material for the "Sefen" Factory which produces a great variety of soft-board products, such as masonite, celotex etc. In a country, suffering from an acute shortage of raw material, even this kind of timber is extremely important, especially in view of the fact that a large part of the products of this factory is designated for export.

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Reading About Conservation

(From page 43)

"Do we," he asks, "want a civilization that will move toward some more intimate relation with the natural world, or do we want one that will continue to detach and isolate itself from both a dependence upon and sympathy with that community of which we were originally a part? Do we want a physical environment more and more exclusively man-made and an intellectual, emotional and esthetic life which has renounced as completely as possible its interest in everything inherited from the long centuries during which we were, willy-nilly, dependent upon what the natural world supplied? Do we want cities completely sterilized and mechanized; do we want art that imitates exclusively the man-made rather than the natural?"

Are these really high-falutin' questions? On the contrary, they are down-to-earth, feet-on-the-ground, hard-fisted questions that we should all be asking ourselves when we consider the times we are living in.

Mr. Krutch relates the story of the obviously unfriendly reporter who revealed not long ago the story that President Eisenhower had ordered removed from the White House lawn the squirrels which were interfering with his putting green. Even so trivial an incident is a straw in the wind, Mr. Krutch says, because to hold golf obviously more important than squirrels indicates a tiny but significant decision. It points, he says, toward a coming world "where there will be more golf courses and fewer wild plants as well as wild animals—hence to a world less interesting and less rich for those who would rather hunt a flower or watch the scamperings of a squirrel than chivv a rubber ball over a close-cropped grass plot."

Mr. Krutch also relates the story of an army officer assigned to an office building in Miami during the First World War and who wrote:

"I haven't got anything here but human beings around me in that building where I spend my days. Aside from the floor and ceilings, the doors and windows and desk and some chairs there isn't anything but people. The other evening when I was feeling particularly fed up with the monotony of the place, I went into the lavatory and as I was washing my hands a cockroach ran up the wall. 'Thank God for a cockroach!', I said to myself, 'I'm glad there is something alive besides hu-

man beings in this building.'"

In the not too distant future the nature-lover may be compelled to content himself with such small consolations, adds Mr. Krutch; cockroaches will not be easily exterminated.

This may give you some of the flavor of this provocative book. In a style that is never written down to the level of the average reader, yet that is popular in the best sense of the word, Mr. Krutch discusses in *The Great Chain of Life*, such topics as the basic forms of life, the machinery of evolution, the animal's first need, the need for continuity, the barbarian mammal, the meaning of awareness, undeveloped potentialities, reverence for life, and how right was Darwin?

On every page of this stimulating book are quotations that startle us into a new awareness. Here is one.

"The matter that disintegrated privately over the American desert and then publicly over Japan ceased in those moments to occupy space. At those instants, therefore, the meaning of the term 'materialist' disappeared as completely as the disintegrated atoms themselves."

I will end this review on the note that the author concludes with. That note is joy. He is quite aware of the tragedy and cruelty in the natural world. He speaks of finding the carcass of a fawn whose belly had been ripped open by a coyote. He watches the hawk circling for the kill, the buzzard hunting for the remains of another's kill. In the world that Mr. Krutch celebrates the fawn and the coyote cannot by the law that imposes the contingencies of the natural order upon them, lie down together. If they did not accept this fact, he says, they could not be as joyous as they are. The question of whether natural creatures have reasons to be joyous is irrelevant. The tremendous fact is that they are, and they act out their joyousness before our eyes.

"Perhaps joy is not so old as pain. Perhaps physical pain and physical pleasure are the earliest forms of awareness. But if joy is not so old as either, it may very well be older than sorrow because for sorrow we need a stronger sense of the past and a stronger sense of the future than most animals probably have. Sorrow is the child of memory and of anticipation, neither of which it is likely that my cardinal knows much

about. Sometimes it is said that Eternity must be more like now than like anything else we can imagine. If this is so, then perhaps birds live in a series of almost discontinuous eternities. And many of them seem to be eternities of joy.

"Many reasons have been given by those who believe it a mistake for men either to create for themselves a wholly artificial environment or to remain unaware of the natural environment in which they live. The out-of-doors is said to be healthful for the body and tranquilizing to the spirit. Nature's ways are described as one of the richest subjects for the exercise of intellectual curiosity; knowledge of them is called indispensable for survival. All these reasons are valid. But none of them seems to me so persuasive as the simple fact that the lives of creatures other than man remind us compellingly of the fact that joy is real and instinctive. We have learned much that the animals do not know and developed many capacities they do not have. But they know at least one thing which we seem progressively to be forgetting and they have one capacity which we seem to be allowing to atrophy. To them joy seems to be more important and more accessible than it is to us.

"Pleasure, which we seek as a compensation for the joy we so seldom feel, is both worthless and harder to come by. It requires some positive occasion, and adequate occasions become harder and harder to create. Pleasure sickens from what it feeds on, joy comes easier the more often one is joyous. We relapse into melancholy or discontent and boredom. We suffer one or the other if we find at the moment no occasion for a different emotion. But nature, so it seems, relapses in joy. Is any other art more worth learning?"

This, then, is the inner meaning of the attitude conservationists take when they talk about preserving natural areas for future generations. It is the unspoken assumption of Mr. Conservation as he spends the busy years of his retirement in seeking more parks for people and sanctuaries for wildlife. Mr. Conservation is a joyous man; perhaps he learned it from the wild creatures he loves and protects, and would have other human beings learn it also. In his new book, Mr. Krutch gives all of us plenty of help, if we will only take it.



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Badge of Pride

(From page 31)

averaged \$750 a year for the past 14 years from sales of sawlogs, pulpwood and fuel from his 150-acre woodlot. One year's production of sawlogs from his Tree Farm provided sufficient lumber to build a new barn. A typical year's harvest includes 30 cords of fuel, 11 cords of pulpwood, and 10,000 board feet of fine sawlogs.

Beef steaks and young ponderosa pines may not seem to have much in common, but to J. W. Southworth, rancher of Grant County, Oregon, they go together like cowboys and cattle. Mr. Southworth owns a 7,000 acre cattle ranch, of which 450 acres form a certified Tree Farm. To meet a constant need for fence posts, Mr. Southworth tried thinnings from his ponderosa pine grove. By making his own posts, he estimates he saves several hundred dollars a year, and at the same time benefits his forest land by giving it a much-needed thinning.

Planting with a purpose is also a typical tree farmer practice. One in Harlan County, Kentucky, has started a planting program scheduled over several years to restore forest cover on abandoned fields and burned-over land where Nature needs some help.

Not only farmers and ranchers, but ministers, teachers, mechanics, office workers, retired persons and even actors are learning that it is a good idea to own a little patch of woods. Good management of such properties means healthier forests, better wood, and—the real pay off—steady profits to the owners. A Tree Farm can be almost any size, from the three-acre tract owned by a Georgia farmer to a 207,000 acre plantation of an Oregon pulp company.

Although they have been printed before, let us review briefly the steps necessary for a woodlot owner to become a full-fledged Tree Farm member. It isn't exactly a quick overnight deal. Tree Farm standards are relatively high, but any woodland owner meeting the three basic requirements mentioned above, can begin wise management practices that lead to certification. Within a few months, or at most a year or two, depending upon the original condition of his woodlot and how much time and labor he devotes to improv-

ing it, he can bring his property up to a standard where it will qualify as a certified Tree Farm.

Tree Farm applicants should write to the nearest district office of the American Forest Products Industries, or, if they do not know its location, to the headquarters of the AFPI, 1816 N Street, N.W., Washington 6, D.C. Without charge, the land is then inspected by a professional forester, who reports his findings to the Tree Farm committee in that state. In due course, this body either approves or disapproves certification.

Sometimes certification of a Tree Farm is made the occasion for a local celebration, to honor the new tree farmer and to call attention to the woodland management practices that earned him recognition. A new tree farmer receives a certificate signed by the chairman of the Tree Farm committee in his state, or by a representative of the forest industry group sponsoring the program.

He also receives a green-and-white Tree Farm sign to mark his property, and a free subscription to a quarterly magazine, *AMERICAN TREE FARMER*, containing much information useful to woodlot foresters, and listings of new books and pamphlets related to silviculture.

A recent extension of the Tree Farm idea that seems to be gaining favor is the "Tree Farm Family Plan," whereby a forest industry gives actual forestry services and aids to member tree farmers who, in turn, usually grant the forest industry first option to buy their forest products at prevailing market prices. This family plan answers a question, currently under nationwide study by foresters, of how to reach the small woodland owner who for various reasons, sometimes financial, sometimes lack of know-how, lags behind industry, government and even fellow tree farmers in forest management practices.

"The family system presents a stimulating challenge to a forester to develop good forestry practices on a variety of ownerships by demonstrating good common sense and following through with faith and good works," says J. C. McClellan, chief forester of American Forest Products Industries, Inc. "It requires more than a knowledge of trees. The utmost in careful human relations is

essential to the success of such a program."

A partial survey of Tree Farm operators across the nation reveals that the family plan is well established in at least eight states, and that additional groups are in the making. An unusual example of the arrangement is T. A. Hardes Lumber Company, of Bradford, Pa., which prepares a complete management plan for each family member. The Hardes forestry family now includes ten ownerships, totalling some 6,000 acres of woodland.

Like other aspects of the Tree Farm program, the family plan is entirely voluntary. In some places it is carried out merely by a gentleman's agreement. If the company does not take up its option to buy a tree farmer's timber at prevailing prices, the farmer is free to market it elsewhere, at whatever price he can get. Best of all, the plan is a step toward stabilizing future timber supplies without the necessity of heavy land-buying.

Considered as a whole, the Tree Farm idea reflects a desire to conserve forest resources rather than preserve them in a permanently wild state. Nature can be pretty wasteful at times, even in small areas, allowing blight, disease and insect pests to take over stands of fine trees unless man lends a hand, removing dead and diseased timber, and pruning and thinning where necessary.

By advocating "multiple uses" of forest land, the program encourages tree farmers also to cooperate with soil and water conservation projects, and with groups interested in such recreational uses of forest land as fishing, hunting and picnicking. A well-tended Tree Farm provides ample food and cover for wildlife, it means better watersheds for lakes and streams, and, above all, it is free from the curse of erosion.

And, while the latest statistics on the overall forest and timber situation look bright indeed, they do not necessarily mean we shall have more wood than we can use in the years ahead. Our population is growing, and the uses for wood are multiplying. To keep forest growth ahead of timber needs is a continuous challenge. The Tree Farm concept, whereby people work out their own forestry problems in a free society through voluntary cooperation between private industry and tax-paying land owners promises to play an increasingly important and useful role. It is free enterprise at its best.

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6-57

They're Trying to Save the Shad
(From page 27)

from available data showing that shad runs fluctuated in natural cycles of abundance. Pollution in this river is a serious problem, and it may be an important factor in shad production. But there are no available records to show changes in pollution on the spawning and rearing grounds, so that, if they exist, cause-and-effect relations cannot be shown.

Within the limits of the populations investigated, the study reveals that the largest factor in the fluctuations of Hudson River shad is that of the number of fish escaping the commercial fishery to spawn. Therefore, by controlling the fishing effort with days closed to fishing (as has been done before) the desired number of shad can escape. These "escapées" determine the size of future runs, so that maximum sustained yields of shad can be determined.

Although shad runs in the Hudson have declined through the years, they have never become a thing of the past as in the middle Connecticut River. For more than one hundred years, sea-run Atlantic shad have been unable to reach their ancestral spawning grounds. This was due to a large power dam at Holyoke, Massachusetts. Now for the first time since 1849, shad can ascend to the upper reaches of the river.

During May and June of 1956, about 7,700 shad were passed over Holyoke Dam. The reason these fish were able to make this run, after more than a century, was due to a fish trap and elevator system. It was installed by the Holyoke Water Power Company, an independent power company.

After experimenting with various devices as fantastic in design as those originated by Rube Goldberg for newspaper cartoons had been tried out, the Holyoke Water Power Company and the U. S. Fish and Wildlife Service installed the contrivance which brings the shad upstream and over the dam.

For their efforts on behalf of the spawning shad, the power company received the Department of the Interior's award for achievement in 1955. The presentation was made to Robert E. Barrett, Jr., the power company's president, by the then Director of the Fish and Wildlife Service. The ceremony occurred during the seventeenth annual dinner of Wildlife Conservation, Inc., a private organization.

Aside from the fish lift in effective

operation at Holyoke, one of the most successful fishways on the Atlantic Coast is at Essex County Dam—a stream obstruction on the Merrimack River at Lawrence, Massachusetts. The Essex Dam was built in 1919 at a cost of \$28,000. Apparently the shad use this fishway because proper hydraulic conditions exist. The passage of shad through the Lawrence fishway was noted in the 1944 Annual Report of Marine Fisheries, Massachusetts Conservation Department. An excerpt from this report said:

"As a partial answer to the oft-made inquiry whether shad will ascend a fishway, our biologist reports that early in July, 1943, the flow of water was shut off in the fishway at Lawrence (Merrimack River), and after the water had quieted, shad were observed in the ladder pools from the bottom up to the 37th pocket. From there on, there is a short straight run into the pond above the dam. One of these shad measuring 15 inches was brought in the division's office for display. These fish had the characteristics of the Connecticut River Shad, and might have been from the planting of fry from Connecticut in 1935."

South of the Hudson, the Ogeechee in Georgia still supports a shad run. The Ogeechee rises in Green County and meanders southeastward for about 350 miles to Ossabaw Sound, south of Savannah. At present this river is free of dams and pollution, and in 1954 more than 35,000 shad ran up it. Some went as far as Midville, or about 125 miles.

The commercial fishing season on the Ogeechee is from January 1 to April 15 and from sunrise on Monday to sundown on Friday. During the 1954 season more than 20,000 shad were taken by professional fishermen in the area between Kings Ferry and Midville; about 3,400 were caught by sport fishermen; and 12,000 or so escaped to spawn.

A study of the total population, commercial and sport fishery, and the spawning escapement revealed that from the population of 35,508 shad, there was a spawning escapement of 12,007 shad or 34 percent of the population and that the overall fishing rate (commercial fishery, 20,096, sport fishery, 3,405) was 66 percent. These figures were estimated by means of a tagging and recovery program.

Although data on the Ogeechee shad runs and catches are not available for the years before 1954, runs will probably continue at the same rate as of those of current years. But only if there are no obstructions or

pollution. Now, along coastal areas of the river, erection of textile mills is in the offing. If these mills become a reality, toxic effluents and blocking of fish by a dam will endanger future shad populations. However, if toxic concentrations are kept below safe tolerance level and any dam has a fishway, the shad fishery of the Ogeechee can be maintained by means of scientific management—regulation of the season through closed days and a forecast of future populations determined by the numbers of fish returning to the sea.

In North Carolina, according to *FISH CONSERVATION HIGH-*

LIGHTS OF 1956, observations were made on the degree of success of a fishway constructed by a power company on the Neuse River. It was found in this 1956 study that shad used the ladder successfully during spawning migration when water levels in the river prevent the fish from swimming freely over the five foot dam.

From these first, tentative experiments with fishways and the initial work with regard to scientific management of the fishery, it appears that the Atlantic shad, like the Atlantic salmon, can be restored in part, at least, to some degree of its



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former abundance. Every effort should be made for the perpetuation of the shad, for this fish is another of our wildlife resources that is self-perpetuating; it is also one that needs only the right environment to continue to provide yearly income and recreation for commercial and sport fishermen and food for our ever-increasing population.

Let us hope that in the future the return of the shad each spring will be plentiful—so plentiful, in fact, that shad bakes on the shores of the Delaware will once more be a custom. Back around the turn of the century, when shad were plentiful, spring had not officially come until a man had eaten planked shad—a fish in which, so legends has it, the devil put all the bones he had at his disposal.

Land of the Wocus

(From page 26)

tive capacity of the marsh for bank nesting, dabbling ducks.

The greatest value of Klamath Marsh is its inclusion in the Klamath basin and the importance of that basin to the entire Pacific Waterfowl Flyway. Visualize the Pacific Flyway as on the map showing general waterfowl migration patterns. It assumes a modified hourglass shape, with birds coming from scattered northern breeding areas and funneling into the Klamath Basin. From here they funnel South, and spread out to their traditional winter areas in the central valleys of California, some continuing on to Mexico. Any area through which the bulk of the birds in a flyway pass and stop is of supreme importance to management of waterfowl in that flyway. Changes in the wintering grounds in California have made the Klamath Basin even greater in importance than that. The condition is critical and it is well to examine it.

For thousands of years ducks and geese wintered on the flood plains and wastelands of the Sacramento and San Joaquin Rivers. Then man arrived, controlled many of the floods, dyed and drained the flood plains, and found that good marshland could be converted to good rice land. Ducks have an affinity for a rice field. It provides their roast beef and ice cream at the same time. Rice growers have herded or driven ducks from their standing crops for many years. This works as long as the birds can be chased to one of the

state or federal refuges; however, these areas are only able to carry a small fraction of the birds involved. Ducks are therefore often herded from one field of standing rice to another. This may benefit the individual farmer now and then, but total depredation damage remains unchanged. Management of food and water areas in the North helps hold the bulk of the birds North of the rice for two weeks longer than usual. Ranchers have time to harvest half of the rice crop. This provides large stubble fields where the birds may feed, and where they can be driven without harm. Ducks and rice can then live together.

The key to this management method is holding the birds in the North an extra two or three weeks. That is the greatest single aim of the extensive federal refuge system in the Klamath Basin. It is generally successful, but requires heroic efforts of food production under difficult land ownership conditions on Tule and Klamath Lakes. All waterfowl habitat in the basin is essential to help in this task. Loss of a single unit of marsh hurts the entire program. Loss of 17,000 acre unit like Klamath Marsh would be a serious blow.

A great deal of grain is grown in most of the Klamath Basin. All attempts to successfully grow it near Klamath Marsh have failed. The area is too high (4500 feet) and cold. This is fortunate for the marsh, as it would probably have been drained many years ago if farming were practical. These same climatic factors reduce Klamath Marsh's value as a waterfowl hunting ground. It freezes in early November and the birds move South; however, it has accomplished its mission of holding birds in the North until the freeze arrives, and it thaws in plenty of time to receive the Northern migrants in the spring.

Conservationists are gravely concerned about the future of Klamath Marsh. If provisions of Public Law 587 are carried out, the marshlands must be sold off, just as the forest lands will be. The marsh is formed by an enlargement of the Williamson River. A long lava dyke at the south end of the marsh impounds the river to form Klamath Marsh. A channel blasted through this dyke would be the major task in a drainage program, and a rather simple program it would be. Much of the marsh could then be converted to wet pasture land, and on the porous pumice soil erosion would be a serious problem. Over 60,000 acres of

the old intermittently flooded northern portions of the marsh have already been converted to this use; only the 17,000 acres of deep water marsh still exist. The 60,000 acres of wet meadow pasture land above the deep marsh are also valuable to waterfowl, particularly during the migration season when birds rest and find feed there. This value would be low without the great marsh to the south. Grazing and waterfowl are compatible here. Birds can cause little damage to stock feed, and livestock cause little damage to birds under present conditions.

Water supplies fluctuate in the

basin and several times in recorded history the marsh has been completely dry. This is unusual, and the marsh performs its waterfowl functions most years.

All managed waterfowl areas are developed to improve their value to ducks and geese. Klamath Marsh would be no exception. It would differ from others in the amount of development necessary. The primary job will be one of fencing the marsh to control, but not eliminate, grazing. This simple task would allow adequate growth of nesting cover and produce additional feed. It could at least double nesting pairs of

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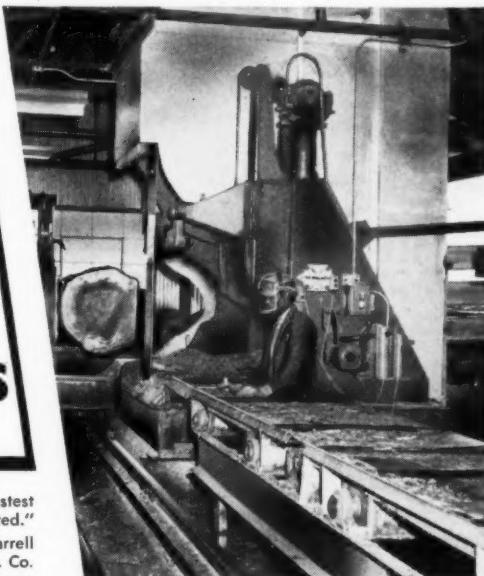
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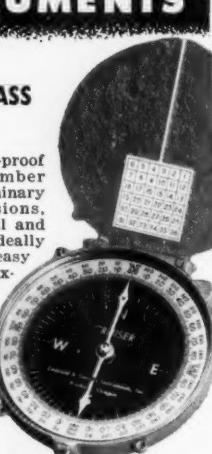
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dabbling ducks and improve the area as a fall feeding ground. As time went on, some system of cross dykes would be constructed to control water levels, especially in dry years. A major section is complete; many years ago a logging railroad grade was constructed across the marsh. The grade could be repaired and used as the main water control structure.

Klamath Marsh is important in the national waterfowl program and should logically be a part of the National Wildlife Refuge System. It would fit into the management program of the three federal refuges in the Klamath Basin. Because equipment and personnel are nearby, Klamath Marsh could be managed and administered in an efficient manner with minimum overhead costs. The marsh could provide some public hunting during the early part of the waterfowl season, and would provide recreation in the spring, summer and fall. Birds reared on Klamath Marsh furnish hunting on all areas to the south and will be even more important as waterfowl habitat declines. Birds using the marsh during migration are vitally important to hunting throughout the whole flyway. Feeding and resting areas during migration are as essential in waterfowl management as breeding and wintering grounds.

Wilderness does not necessarily mean high mountains. A large natural marsh in a mountain basin is a scenic, primitive thing that appeals to the spiritual needs of many people. Klamath Marsh filled this need for the Klamath Indians and it could fill part of the same need in our present civilization.

Wildlife conservationists want the marsh in government ownership. They also want the rights of the Klamath Indians safeguarded. Amendments to the termination act should make provisions to accomplish these needs. The big job is to retain Klamath Marsh as a marsh and manage it for waterfowl. It is fortunate that almost all the land within the meander line of the deep marsh is "tribal" land, dedicated to the entire tribe, rather than "allotment" lands assigned to individuals. This will simplify government acquisition. Best estimates of the total size of a good refuge management unit vary between 20 and 25 thousand acres. It is always necessary to include not only the marsh, but essential peripheral lands for proper grazing control, headquarters areas, and water control points.

Even the name of Klamath Marsh is confusing. Downstream we find Upper Klamath Marsh, Upper Klamath Lake, and Lower Klamath Lake, while above them all is Klamath Marsh. When the Klamath Reservation no longer exists, there will be little to remember the Klamath Tribe and nothing to remember of their old ways and culture. *What better monument could we give a people than setting aside their old food producer and culture center on Klamath Marsh, to be used for the same purposes that they did?* It would be a refreshing change from the glorification of battlegrounds where Indians and whites fought.

To the Klamath Tribe, Eukshi was the land of the wucus. Our people could well call it Wucus National Wildlife Refuge.

Those Mysterious Outer Banks

(From page 23)

In this snug harbor, protected by off-shore shoals and submerged shipwrecks, an environment exists that is particularly relished by an extensive variety of fish, making sports fishing here and along the entire length of the banks an ever increasing attraction.

You don't need any special type of equipment to land the big ones on the Outer Banks. Any kind of usable tackle will do. Spring and autumn are the best seasons for really sensational catches, but there is some type of sports angling going on almost every day in the year to challenge surfcasters and those who

fish from piers and small boats.

Gulf Stream fishing usually begins in May and ends in November, with dolphin, Spanish and king mackerel, blue marlin, blues, amberjack and sailfish favorite and most abundant game species. Tarpon are in good school in late fall.

A surf fishing tournament is staged each October at Nags Head. Channel bass (red drum) abound in Spring and are caught with surf and trolling tackle. Surf fishing reaches its peak when channel bass return in autumn. In summer, whiting, sea trout, pompano, blues and spots are hauled in by surf and pier fishermen.

A variety of salt water fish, found in sounds and inlets, are caught from small boats, while fresh water ponds in Nags Head vicinity and waters of Currituck Sound yield large-mouth bass, bass and panfish. Bodie Island boasts three piers, Nags Head has two and Kitty Hawk one. Other piers, further south, are scattered all the way down the Atlantic Coast to southeastern beaches in Wilmington and Southport. Charter boats, for inlet and Gulf Stream fishing, are available near Wadesboro, Manteo, at Oregon inlet and Hatteras.

Party boats may be obtained at Ocracoke. Surfcasters can get buggy service on Hatteras and Ocracoke.

Wild geese and ducks by the thousands winter on Hatteras, Currituck Sound and Ocracoke, and hunting guides may be acquired at these sources. Grey foxes afford a special form of hunting fun around Nags Head, where a Valentine Season Foxhunt is held each February. It is also a stamping ground for waterfowl hunters.

Here you'll find year-round accommodations at reasonable rates. The same goes for Hatteras, Roanoke, Ocracoke and other islands.

Few, if any, tourists visit the Outer Banks without including at least two of the four lighthouses on their agenda. Hatteras, the most famous, towers 208 feet into the air and shoots a beam of light 191 feet above the restless waters; is the tallest lighthouse in the United States.

Bodie Island Lighthouse, due south of Nags Head and just inside the Cape Hatteras National Seashore, rises 163 feet into the air and is visible for 19 miles.

Ocracoke Lighthouse stands within the environs of Ocracoke village, is 76 feet tall and sheds a white light for 14 miles. On the Core Banks, near Morehead City and Beaufort, is Cape Lookout Lighthouse, which is 160 feet high, and was built in 1859 to replace an obsolete lightshaft erected in 1812.

Diamond Lightship, 13 miles off Cape Hatteras, is the most modern installation of its kind, being equipped with radio signals and a beacon visible for 14 miles. It guards the dread shallows known as Diamond Shoals. Fishing is excellent in the vicinity of these lighthouses.

The Coast Guard maintains stations from Kitty Hawk to Cape Lookout, and keeps an eternal vigil over the treacherous Outer Banks. Service in the Coast Guard is tradition with Outer Banks men, many

of whom have distinguished themselves by rescuing passengers and seamen from wrecked vessels grounded by storms or sunk by German undersea craft during two World Wars.

A contingent from the Chicamacomico Coast Guard Station, headed by Capt. John Allen, rescued 42 crewmen from the blazing waters around the torpedoed British tanker "Mirlo," for which awards were received from grateful American and British governments. A fitting memorial to their heroism is located on Hatteras highway.

Like the fabled Sargasso Sea in the Caribbean, where countless ships

are purported to have come to grief by getting their rudders entangled in the mass of seaweed that covers that area, the banks have claimed many a vessel whose identity will never be known. Colorful legends vie with historical records in attempting to give these ill-fated craft their proper place in the scheme of things, but so far they've just about broken even.

Most of the wrecks are pretty old, and their incidence today is becoming rarer as newer, more modern communications and ships' instruments are introduced. But shipping hazards off the banks are still suffi-

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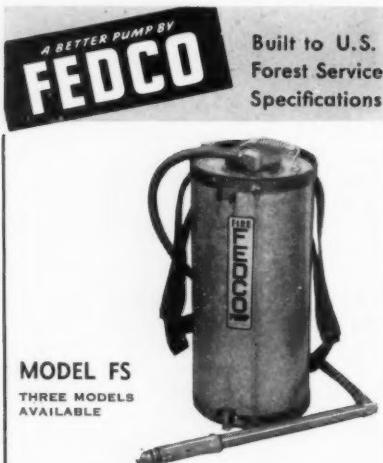
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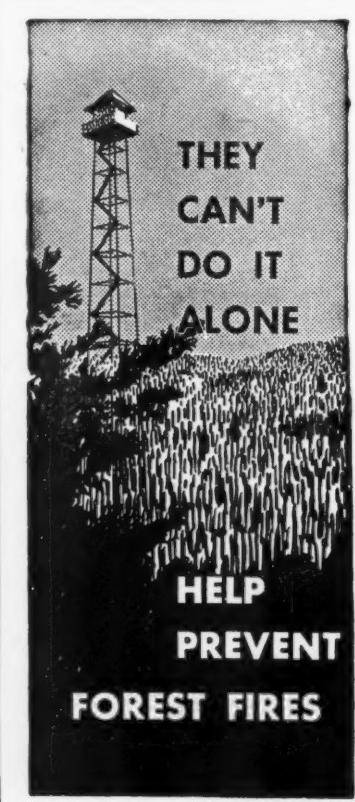
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ciently precarious to warrant constant watchfulness on the part of mariners and Coast Guardsmen.

Dotting the beaches from Nags Head to Cape Lookout are the hulls of ancient sailing ships, most of them buried so deep in the sand that only an occasional mast or other timbers show.

Later, at Rodenthe, Hatteras Island, two LST's ran aground during World War II while being towed. If they could talk they would probably tell many a heart-quickenning story.

One of the most mysterious wrecks ever catalogued was that of the "Carroll A. Deering," the famous "ghostship," which shifted from Ocracoke to Hatteras during a heavy gale in 1955. When the Deering was discovered aground on Diamond Shoals in 1923, there was no sign of life aboard her except the ship's cat, although food was still warm on the galley stove. Despite the most searching investigation, no trace of her crew was ever found, and no nation ever claimed her.

Historically, the highest ranking wreck is that of the ironclad "Monitor," which was sunk off Hatteras following a fierce encounter with the "Merrimac" during the Civil War.

German submarines wreaked so much damage on merchant ships off the banks during World War I and II that the area became known as "Torpedo Junction."

Although legend attributes most Outer Banks families as being descendants of shipwrecked colonists and sailors, or of pirates who prowled the area in the 17th and 18th centuries, more careful investigation discloses that the majority of people who originally settled here were commercial fishermen, pilots, whalers, traders, ship builders, or other seafaring men who signed aboard the cargo vessels which plied between the banks and England, and the banks and the West Indies.

Some wandered down to this coast from Maryland and Virginia; others made the trip directly from Britain with the intention of settling on the mainland, but liked the islands so well they stayed and homesteaded on them.

Later an influx from the mainland joined them. They, perhaps like modern tourists, were attracted by the region's moderate climate and fine fishing.

Once settled, families seldom left and, therefore, were isolated from the outside world. Most recognizable characteristic of the true native is

his picturesque speech. It's "toime and toide" that wait for no one on the banks. Most of the men follow the maritime custom of referring to ships by the feminine gender, but also refer to the tide, the weather, fish and the sun as "she." In accent and pronunciation, the speech of the older residents resembles that of northern England. Even visitors from the British Isles are impressed with this.

The rugged residents of the Outer Banks are friendly, hospitable and accommodating. Oldtimers at Kitty Hawk never tire of telling about "Mr. Wilbur and Mr. Orville" and the days when they were tinkering with gliders and perfecting the flying machine aptly named "Kitty Hawk," or relating the exploits of Blackbeard the Pirate, who had a secret lair on their island long ago where he cached his loot. He met death there in 1718 at the hands of Lieut. Robert Maynard, RN. Others speculate with understandable solemnity on the fate of the "Lost Colony" and the ghost ship "Carroll A. Deering."

Vegetation is small and stunted on most of the Outer Banks, but thick forests of live oaks, pines and holly cover the south side of Bodie Island and woodlands of various types are at Duck, Buxton, Ocracoke Village and Roanoke Island. The latter is particularly beautiful in the spring, when white and pink dogwood are in bloom.

Roanoke also has an Elizabethan Garden designed to blend the New World countryside first seen by Englishmen in the 1580's and the landscape they left behind them in England. This beautiful project was founded and dedicated by the Garden Club of North Carolina on August 18, 1955, commemorating the 388th anniversary of the birth of Virginia Dare. Strategically placed among many priceless garden ornaments is a statue of Virginia Dare, sculptured in Rome 75 years ago. The garden itself was designed by two famous Italian landscape architects, Umberto Innocenti and Richard Weibel.

Dare County's mean annual temperature of 60.4, varies only slightly with that at Hatteras and Buxton where the average is slightly higher due to their proximity to the Gulf Stream. Two or three degrees higher is registered yearly. Although the Outer Banks suffer little hurricanes, both residents and visitors receive ample storm warnings from the Coast Guard and have plenty of time to drive inland should they so desire.

Seafood in great abundance and variety is usually available on the Outer Banks. Oysters, clams, crabs, and shrimp—excellently prepared—head the menus of restaurants, motels and hotels. Fish is cooked in various ways in the better eating places; in others, it's always fried. A full supply of other foods are also available. Grocery stores stock good selections of staples, meats and vegetables.

You can rent a cottage and do your own cooking, if you wish, and in case you do, one of the delights will be catching your own fish or crabs, or buying them at the markets, and preparing them to your own taste.

For the thirsty, Nags Head and Manteo boast county-operated liquor stores. Light wines and beers are on sale at a number of eating places, but no beer or other spirits are sold legally on Hatteras or Ocracoke. However, North Carolina law allows you to bring as much as one gallon of alcoholic beverages in original containers with seals unbroken, and there's no limit on the quantity of beer or unfortified wine for personal consumption.

Many tourists find vaupon tea, a local beverage made from the leaves of a native shrub and served at several eating establishments as a novel part of their menus, a delightful change from the ordinary beverages.

The principal link between the Outer Banks and the North Carolina mainland is the Wright Memorial Bridge, which accommodates all types of traffic toll free. Roanoke Island is connected with the mainland by a new bridge across Croatan Sound as a link in U. S. 64.

Roanoke Island itself, which is situated in the sound waters between Bodie and the mainland, is connected to Bodie by a toll-free bridge spanning Roanoke Sound.

Highway 158 is a paved seaside thoroughfare through Kitty Hawk, Kill Devil Hills and Nags Head. At Whalebone, 158, 264 and 64 connect with the highway to Hatteras, which also crosses Oregon Inlet via free automobile ferries to Hatteras Island. From there it traverses the 50-mile length of the island to Hatteras Village, passing through seven island villages enroute.

Built and maintained by the state of North Carolina, this is the principal access road to the Cape Hatteras National Seashore Recreational Area, which also sparked a building boom in the Nags Head, Kitty Hawk and Kill Devil Hills locality now total-

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For more complete information and folder describing the famous "Lost Colony" pageant, contact Dare County Tourist Bureau, Manteo, N.C. There is no charge.

"Something Ought to Be Done . . . "

(From page 20)

especially that of a teacher, is incomplete without a functional understanding of local and national conservation problems. But we were faced with a major difficulty. Ours is a metropolitan college located in a large city and in an industrial region. How could we provide our students with the environment needed to give them a genuine understanding of conservation problems? And how could we give them direct experiences in conservation work?

This was a thorny matter. A small group of faculty members and a larger group of students worked together to persuade the student body that the college ought to own a camp. After numerous long discussions, the proposition was put to a popular vote. It was approved by an overwhelming majority, together with a proposal to establish a student camp tax of \$3 per student per year. The funds thus collected were earmarked for "the purchase, development, and maintenance of a multipurpose camp." Soon thereafter we purchased, in the name of the student body, an old, hilly, worn-out farm of 433 acres. Within two years we constructed on it a 50-person, year-round lodge, complete with central heating, fireplaces, modern kitchen facilities, and many of the comforts of home. We now have a rural campus greater in area than the domain of Princess Grace of Monaco. It has cost the student body some \$60,000. It has cost the New York State taxpayer nothing.

The camp is now in regular use for educational, recreational, and social purposes. Perhaps the best educational work is done in conservation. The land offers us a splendid laboratory opportunity for student learning. Each spring all our biology classes are taken to the camp for an all-day experience. Some 250 future elementary school teachers, in groups of about 30, study conservation. The necessary background is acquired before the camp trip. At the camp they see an old field that has been seeded to bird's-foot trefoil, and learn the reasons why. Another field that

has been in timothy for years is used for comparison. In still another, one that has not been tilled for many years, students see the blackberry, dewberry, thorn apple and quaking aspen coming in. Then they study the old grove of over-mature sugar maples and see what happens when timber is not harvested properly. Beneath their feet in this grove they can see the results of using woodlands as pasture for cattle. In another area they can see the results of the indiscriminate cutting of all timber, and the thick sprout growth that results. Finally they are taken to two or three small patches of woodland where trees are just coming into maturity. All this is good ecology; we think it also gives a background for conservation education.

Just seeing and talking is not enough. Our students get the feeling that "something ought to be done about it." They are conversant with John Dewey's philosophy: we learn by doing. So we give them the opportunity to do something about the conservation problems at the camp. We point out to them that here is a stony field with a steep slope and an inch of topsoil, unsuited for cultivation, and providing no return. What shall we do with this land? The conclusion is soon reached that the planting of trees on it is a wise thing to do. Then we bring out our land utilization program, and explain that it was developed jointly by college students, experts from the New York State Conservation Department, and from the United States Soil Conservation Service. The next step is obvious. We have the tree seedlings at hand, so we begin the job of reforestation.

Each class of thirty students is organized so the work goes expeditiously. Two students are in charge of a long chain with planting distances marked on it. Other students—girls as well as men, use mattocks or dibbles. Others do the actual planting; still others keep the planters supplied with trees. The instructor in charge is kept busy checking the work to make sure it is done

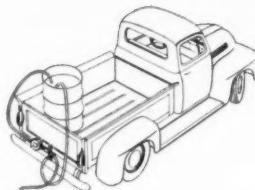
properly. A thousand trees can be planted in a remarkably short time.

In the last five years our students have in this way planted 28,000 red pines, black spruce, and Japanese larch. We are also experimenting with hardwoods, having planted seeds of black walnuts, Chinese chestnuts, and a few English (Carpathian) walnuts. The rate of survival of the conifer planting has been good. The whole enterprise is an exciting experience for students. Most of them have never planted anything. Some of them are skeptical that the trees they plant will survive and grow. We show them the previous year's planting to motivate and convince them.

Fortunately our old farm is sufficiently large to assure reforestation experiences for our students for years to come. Our present plantation covers approximately thirty acres; we are looking ahead to planting another field of about sixty acres. By the time that is done it will be possible to return to the first plantings to teach small forest management. We will make improvement cuttings as the need arises. Thinning, we expect, will also be done by students, as well as pruning. There may be some early harvesting and sale of Christmas trees, with students handling both the labor and the business involved. At all times we shall have the advice of state forest conservation men to advise us and teach us.

We have also started, and expect to continue, work in other aspects of conservation. We have planted hedges of several thousand multi-flora roses, hazelnuts, panicled dogwood, and highbush cranberries. Students understand that these hedges will help to lessen soil erosion, reduce the runoff of surface waters, and provide food and shelter for birds and small mammals. Three small streams flow through the farm. As might be expected in such hilly land, they were causing considerable erosion. Here students see the gullying that results. For purposes of learning it is far better to have students walk in such a gully than to see a picture of one in a book or a movie. Willows have been planted and small dams constructed to help with this problem.

As part of our land utilization program, we were advised to build small farm ponds. Students worked with the soil conservationist in the planning stages of this project. Students, working with pitchforks, scattered a thick mulch of straw over the bare dikes to prevent their erosion during



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the first winter. The following spring students raked off the straw, scattered fertilizer by hand, and seeded the dikes with bird's-foot trefoil and a nurse grass. One pond was stocked with brook trout, another with the blue-gill and black bass combination. Now students learned some limnology; they found out why it was necessary to fertilize the ponds. They then carried the fertilizer to the ponds and scattered it into the water. Later students experienced the thrill of catching the first trout, legal in size. Yes, they were caught on worms.

The faculty members involved in this program are quite sure that experiences such as these are valuable to prospective teachers. Students enjoy them; they look forward to the work. But it is not enough to state categorically that what we do is truly valuable. Objective evidence is needed; data must be secured to determine the worth of the work. To this end one of the professors involved is developing an evaluation device, to be used with students who have participated in the camp experiences. Preliminary results indicate that a significant change occurs in students' attitudes towards conservation. It becomes more meaningful, more important to them.

We are deluding neither ourselves nor our students into thinking that the planting of a few thousand trees at our college camp will make a

tremendously significant contribution to the solution of a national problem. As college teachers we are more interested in planting ideas than we are in planting trees. We hope and expect that when planted in this way the ideas will take root better, flourish better, and provide seed for the growth of ideas in the minds of future generations of children. When we have students fertilize dikes and ponds, we really hope to fertilize and make greener their interest in America's future. We are acutely aware of the fact that the prospective teacher who plants a few trees at the camp this year will teach children who will be voters before and after the year 2000 A. D.

This entire program is quite new to us. In September, 1951, we had only the big idea of what we wanted to do. Now, through the cooperation of many faculty members, several hundred students, and with the strong support of the college administration, we have laid the basis for making conservation more meaningful to Miss Jones. If you live in New York State you may know her. She teaches the third grade in your local school. Now when your Johnny brings her an apple she knows the kind of tree from which it came. She has seen some at the college camp. And now she knows, too, that Christmas trees are spruces or firs or Scot's pines—not just evergreens.

Bull Run Watershed

(From page 18)

times; the youngest dates to Pleistocene times. Aerial photographs reveal numerous rock outcrops.

So far, the watershed's soils have not been studied. They appear to be brown silty and loamy residual soils which may fall within the established Olympic and Cascade series.

Forest cover is virgin timber consisting of overmature Douglasfir 400- to 600-years old (Figure 2). But in many places this cover is in an advanced stage of ecological transition to western hemlock. On the higher ridges are found the true firs and mountain hemlock. The watershed has many snags which resulted from natural death, fire, and more recently from light insect infestations. Timber volumes are high, in some places exceeding 100,000 board-feet per acre. Total merchantable timber is estimated at 3.6 billion board-feet.

Good precipitation and runoff

data are available for the lowest portion of the watershed, the Headworks site (the point at which Bull Run water is diverted into the city conduits). But very little is known about precipitation in the higher reaches.

Long-term records at the Headworks show an average annual precipitation of 80 inches. Sparse records at a higher elevation indicate a 124-inch average annual precipitation. Considering the topography and elevation of the watershed as a whole, average annual precipitation is about 123 inches, whereas runoff is 99 inches, so that approximately one-fifth of the annual precipitation cannot be recovered. On the other hand, further computations for the watershed indicate that runoff usually exceeds precipitation during May, and sometimes in April and June. Melting snow is of course the reason for this phenomenon.

The quality of Bull Run water is

superb. The water is very soft and exceptionally low in mineral content. In 1911 the U.S. Geological Survey analyzed the chemical composition of the water and found only a trace of suspended soil particles, and 30 ppm of dissolved solids. At the same time, the Sandy River (an adjacent stream into which the Bull Run empties), which has its origin in the glaciers of Mt. Hood, had 534 ppm of suspended soil particles. Today, almost half a century later, this analysis still holds true.

The federal law prohibiting trespass to all persons except bona fide officials and employees has already been cited. Enforcement of this law is aided by the fact that roads and trails are almost nonexistent. But the dearth of trails is a two-edged phenomenon: it keeps out unwanted visitors; but it also hinders administration, particularly as it relates to fire fighting. As an example, 7 hours were required to reach a recent lightning fire: 2½ hours on road and trail, and 4½ hours across country through heavy brush. Fortunately the potential fuel was still moist from previous rains.

Annual water consumption during 1955 was equivalent to 11 inches of water over the watershed. This figure is low compared with the long-term average annual runoff of 99 inches. On the other hand, water shortages do exist, and the needs of an expanding population must be anticipated. Weather was not particularly hot and dry during 1955, yet water consumption during August was equivalent to 1.31 inches over the watershed, whereas the August long-term average runoff amounts to only 1.58 inches. If Portland had no reservoirs, its condition would be untenable. But its 10-billion gallon reservoir (equivalent to 6.7 inches of water over the watershed) provides a measure of safety. Moreover, the city is now preparing a site for a new reservoir, which will relieve any water shortages in the near future. In addition, the topography of the watershed is such that numerous reservoirs are economically feasible. Thus, Portland's water demands in the foreseeable future can be met from the Bull Run River.

Bull Run watershed is no longer an isolated area. Civilization is steadily encroaching from all directions, thereby distinctly increasing the possibilities of trespass, with attendant outbreaks of man-caused fires. The overmature timber, liberally sprinkled with snags, is particularly susceptible to a disastrous

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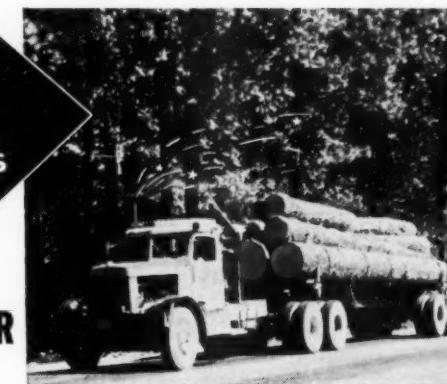
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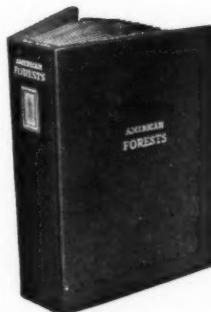
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conflagration. Thus far, no logging has been done on the watershed.

These circumstances have led to some important questions: Can the watershed be logged without impairing both the water yield and quality? Can logging be accomplished in a manner to increase the water yield during the period of normally low flows? If a catastrophic fire takes place, what measures should be undertaken to quickly rehabilitate the watershed? These questions are not academic. They are pressing questions which demand an answer.

In the latter part of 1955 the city of Portland and the U.S. Forest Service signed a 20-year agreement envisaging a joint undertaking of experimental work on the Bull Run watershed. The experiments will seek answers to the important questions posed above, as well as to others which have not been mentioned. To our knowledge, this is the first known instance in which an American city has been willing to undertake the costly expense of watershed management research. It forcibly

demonstrates the importance of a plentiful supply of pure water.

The first step in this cooperative program was undertaken in 1956, when three small watersheds within the Bull Run area were selected for experimental work, and a start made on installation of appropriate gages for measuring streamflow and precipitation. When the appropriate instruments have been installed in all three watersheds, then further research will be undertaken on some of the other pressing problems.

City dwellers usually think of water they use in terms of the nearest faucet. Seldom do they recognize that a good water supply is essentially a land use problem. It was uncommon foresight, then, that prompted the city of Portland to join with the Forest Service in seeking answers to their future problems of water supply. The poetic pronouncement "Where there is no vision, the people perish" is perhaps nowhere more true than in the case of forests and waters.

Forest Forum

(From page 4)

prefaced by remarks that he was referring only to extremists. Unfortunately, that disclaimer was probably missed not only by the conservationists who received copies, but also by the people on the Forest Service distribution list. I had understood that he later felt his words were unfortunate and that he went farther than he meant to. I hope he agrees that there is room in this land of ours for preservation as well as utilization, and that multiple use means more than "timber production plus something else."

Maybe there's a moral—that labels are necessary, but should never be misleading, or so gross as to obscure the shape of what one is trying to display.

David R. Brower
Executive Director
Sierra Club

"More to Life Than Loot"

EDITOR:

I want to compliment you on your editorial "Cabin John's Treasure." For a great many years, on my visits to Washington, I have seen the street cars labelled "Cabin John." But to me it was just some place where the street car goes, and probably that was all it was to the conductor! But we learn what a place can mean to someone who lives there.

Everywhere in the world there is this human impulse, the same tendency shown in your editorial and in Mr. Krutch's penetrating analysis in "Which Men? What Needs?" Almost in the same mail with your magazine came a letter from sensitive people in Alaska, appealing for help to give the polar bear some chance in the face of our exuberant machine age; and a letter from New Zealand describing some citizens' ef-

forts to save beautiful Lake Manapouri from drowning under a big dam.

From one end of the world to the other, people are today struggling for the concept you mention: "There is more to life than loot."

Olaus J. Murie
Director
The Wilderness Society

(Editor's Note—We would like to show Dr. Murie the end of the Cabin John car line someday. It's a nice trip, following the Potomac as it does. The conductors know everybody, hold up for latecomers, and inquire after the sick. Also, we have encountered people on our line just riding for the sake of seeing where the street car goes and what Cabin John is.)

Homes on National Forests

EDITOR:

Together with Dr. Herman Chapman and Mr. Olaus J. Murie, I would urge a reconsideration of the policy of allowing private homes in our national forests. The pressure of the increasing population density is increasing so fast that our national forests soon will be consumed as are many of our golf courses and parks in and around our cities.

I feel very strongly that there should be no permanent private dwellings on our national lands. Camping or lodging facilities on a concession basis would be a more controllable way of giving the public access to the beauty of the wilderness.

T. J. Wachowski, M.D.
Copley Memorial Hospital
Aurora, Illinois

Quality

(From page 15)

What the "hand" craftsman contributes is careful hand finishing, and originality of design, so that the eventual purchaser can be sure he will not see the identical piece in every other home he visits. And having an affectionate feeling for the beautiful woods in which they work, the craftsmen never forget to make the most of interesting and curious figurings in the grain. A favorite item is the slab coffee table made by cutting through a knotted, twisted and even cracked piece of stump—and if the cracks seem in danger of splitting the slab, it is held together with inlaid cross bands made of wood of a contrasting color. This is then given a high, but never glossy polish.

In every good craftsman's establishment, there is a store room filled with rough slabs, chunks and boards. Here the customer interested in ordering a piece of furniture, is brought to select the piece of walnut from which his coffee table will be made, or the pieces of cherry or mahogany for his record cabinet. In every such store room you will find a dozen pieces of wood on which the name of a customer is scribbled in pencil—for nearly all of these craftsmen are many weeks behind in their orders.

Another thing to keep in mind about these wood craftsmen is that all of them face the need of making a living in a competitive world. Nearly all of them work full time making furniture, although a few teach wood working on the side.

As to meeting the prices of the big commercial furniture makers, this isn't as difficult as you might think. In many cases these people work far out in the country, or in old lofts where the rent is next to nothing. Often they escape most of the taxes which plague the big operators, and they have no real payroll to meet. Finally, they do next to no advertising, and usually sell directly to the ultimate purchaser, although a few have sample pieces on exhibition in small, big city shops. Once established, business comes to them—usually via a telephone call from someone who has seen and admired a chest or chair or sideboard in a friend's house. But while an adaptation of a craftsman's regular designs will sell for a price comparable to that of a similar piece from a

big manufacturer, special pieces made to fit into the customer's home, are something else, and run into money.

Kuchi Nishino, who has been making such special pieces down on the lower west side of New York for fancy suburbanites for the past twenty-five years, finds that there is great demand today for jumbo combination structures providing for practically all the customer's needs. Ostensibly these pieces are bookcases covering an entire wall—or even parts of two walls. Nishino leaves a big opening for the TV tube, provides a panel for the controls, a drawer for the record player, one or more openings for Hi-Fi loudspeakers, a storage cabinet for records, a mirror-lined bar shelf with a bottle storage cabinet below, and tucked in odd corners are drawers with compartments for table silver and napkins—and finally there are upholstered benches which somehow pull up and out of the bottom, to be used, presumably, when the TV is turned off. Shelf spaces above and around the edges can be used for books—if the owner of this emporium has any time or energy left to read. Usually these are built of 1" walnut or mahogany veneer pieces about 20" or more wide.

As with all artists, different men see things differently. Some won't touch veneer, insisting on solid wood throughout, although very wide pieces are of course built of smaller members glued together. Some craftsmen insert metal or ceramic plaques in tables, either for decoration, or to serve as hot dish holders, in a day when there is a great deal of informal eating, both indoors and out. The all-wood boys think this is something of a sacrilege, but I must confess it seems like a very sound idea to me.

The unquestioned leader among hand furniture craftsmen in America today is California-born George Nakashima, an architect who, because of his Japanese ancestry was deported in 1942 to a concentration center in Idaho. Here he met a Japanese-trained carpenter, and with time to spare, he learned cabinet making from this man, becoming fascinated by producing things with his hands instead of merely drawing pictures of them. When he was released, he accepted the offer of an architect friend and settled on a

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Water

(From page 2)

streams and rivers, it was so contaminated it was of little use. A water shortage can reduce American production, just like a shortage of raw materials or manpower can. In order to keep the water clean, cities and industries are building more and more treatment plants. Uses are also being made of the materials that were once discarded. What is left of sewage after treatment is used for fertilizer? Factories are selling waste materials or converting them into products they can sell. Even so, it will take a long time to make all of our river water clear and pure again."

Other section titles:

Water Around Us; Kinds of Water; Snow; Rain; How Much Rain; Rainmaking; Water in the Ground; Streams and Lakes; Lands that are Wet; The Big Rivers; The Ocean; Life in the Sea; From Earth to Clouds; Water Supplies; Drinking; Washing; Water for Cities; Water at Work; Water Power; Transport by Water; Waterways; Water for Fun; New Uses for Water; How Plants Use Water; The Deserts; Water for Crops; Irrigation; Water Rights; New Lands for Crops; Drainage; Water Erosion; Gullies; Soil and Water Conservation; Farm Water Disposal Systems; Plants for Water Control; Forests Conserve Water; Water on the Range; Water for Wildlife; Farm Ponds Store Water; Water Forecasting; Floods; Upstream Controls; Downstream Controls; Water Pollution; Sedimentation; River Clean-up; Water Shortages; Storing Water; Watersheds; Treating a Watershed; People Working Together; Study; Plenty of Good Water.

Opposite a charming picture of drops of rain refreshing the slender leaves of a wheat stalk, is this section on how plants use water:

"Water is an essential part of protoplasm, the living substance of all plants and animals. Like human beings, plants are mostly made of water. A cabbage is 90 percent water; carrots are 85; corn is 80; cucumbers are 96; potatoes are 79; and spinach is 90 percent water. . . ."

If I had my way, I'd give a copy of this book to every school, civic and professional club member in the country, as well as trade unions and, in fact, every citizen of our republic who wishes to understand the facts of the fullness of our life.

piece of farmland near New Hope, Pennsylvania. At one time he and his wife and child were living in a tent; but he built a house for himself, and today has about twenty men working for him, mostly local farm boys he has trained. Part of the rough shaping is done for him in another shop nearby by his own men, and such stock items as round legs, spindles, etc., he buys from commercial woodworkers.

But while he is now nationally famous and has shipped pieces to almost every state, Nakashima and his men still consider each piece of wood as a separate problem to be solved on its own account, and once he was quoted as saying, "the hours spent by the true craftsman in bringing out the grain, which has long been imprisoned in the trunk of a tree, is an act of creation itself."

On occasion Nakashima has licensed some of his designs to be made commercially, but this is not very practical, he says. Designs are too easy to imitate, and too hard to protect. One day he opened a mail order catalogue to discover that one of his chairs was now a stock item—so he gave over on that one and does not make it any more.

Another indicative remark credited to Nakashima in *House & Home*, (offshoot of *Architectural Forum* started about 1952) a fat and glossy publication, was his answer to someone questioning his workshop methods with the remark, "But George, don't you want a Cadillac?" To which George replied, "No, but I've seen a milling machine which costs about the same amount of money which I'd much rather have."

What Does AFPI Do?

(From page 33)

education, AFPI is giving the public a factual account of the nation's forest resources and how conservation through wise use assures the country the wood it needs today and tomorrow.

Its programs are built around two nationwide conservation movements—the American Tree Farm System of growing timber as a crop; and the Keep America Green fire prevention education program—both of which it sponsors at the national level.

With national headquarters at 1816 N Street, N.W., Washington, D. C., AFPI gives nationwide services at the local level through 12 district offices around the country, each manned by a person skilled in forest industry public relations.

These offices are situated at Tacoma, Wash.; Portland, Ore.; San Francisco, Calif.; Green Bay, Wis.; Chicago, Ill.; Huntington, West Va.; Memphis, Tenn.; New Orleans, La.; Atlanta, Ga.; Raleigh, N. C.; Harrisburg, Pa., and Boston, Mass.

What did AFPI do in 1956?

Here are some of the major things:

1. Filled 44,822 requests for forestry education materials from schools around the country—more than twice the requests for the previous year.
2. Filled requests for 20,301 advertising mats on forestry and forest fire prevention for the nation's newspapers.
3. Enrolled nearly 4 million acres in the American Tree Farm System and activated the pro-

gram in four new states.

4. Took a special forest conservation message directly to the country's 1.5 million Boy Scouts through a Scoutmaster's Forestry Kit.
 5. Sponsored, for the ninth straight year, a national forestry contest for 4-H members, with an all-time record of 63,000 contestants whose entries involved over 460,000 acres of woodland.
 6. Prepared and distributed materials of all kinds for industry's nationwide drive against forest fires.
 7. Prepared and distributed new and revised forest facts books for 15 states; also nationwide facts books for three major segments of the wood-using industry.
 8. Distributed 455 statewide press releases on forestry and forest industry subjects.
 9. Placed 1,285 stories and features with press, radio, television and magazines through its district managers and the Washington, D. C., editorial staff.
- While AFPI's 1957 program is largely a continuation of its education and public relations work, its tools have been reshaped to accomplish specific objectives, many of them revealed in a nationwide public opinion poll made in 1956. The poll, first since 1952, showed considerable progress in public attitudes

toward the wood-using industries, yet it revealed some glaring deficits in the public mind.

Through the help of AFPI's forest industry committees and other forest industry leaders in the states, AFPI is driving specifically to correct erroneous opinions held by large segments of the public on the status and management of the nation's forests.

This year AFPI, through its dis-

trict managers, is conducting a nationwide survey of recreational facilities being made available to the public by the forest industries and other private landowners. The results, it is believed, will show further the good citizenship role of America's forest industries—serving in the public interest.

For AFPI, the year 1957 is already off to a flying start. But it's a little too early to tally up the accomplishments.

Missouri's Botanical Garden

(From page 40)

deer and innumerable other wildlife, and made it a popular hunting ground for Indians. At that time it supported far more hoofed wild beasts than it ever did domesticated animals for the white man.

Today, two and a half decades later, an encouraging beginning has been made in restoring the landscape. Many of the brushy hillsides are again grassland. Native wildflowers are again appearing along the 6½ miles of trails along cliffs and ridges. Herds of whitetail deer flee their dams across some of the warily from intruders. Beavers throw streams. Wolves occasionally raise their litters on the grounds. Red fox, opossum, raccoon, skunk and mink are abundant.

How this is being accomplished is a story of the scientific study of man's relation to the soil, of the interdependence of wildlife and flora, and of the effect of weather on both animals and vegetation. Every year adds new details to the story.

The experiments of the garden staff fall into three natural divisions: first, restoring grass to the forested hillsides; second, encouraging wildflowers back to their original environment; and third, creating a favorable habitat for wildlife. While all of these projects have been carried on simultaneously, as time and funds have been available, the creation of verdant pastures on the wornout hills has shown the quickest results. That is a good starting point to review the restoration.

The previous stages of natural reforestation which had taken place on the abandoned Ozark fields of the Arboretum Extension Garden is described by August P. Beilmann, arboriculturist, in a garden publication.

"First, various rough weeds invaded the corn ridges and after they

had reached a point where they shaded the soil, the nearest light-seeded trees came in," he reports. "The nearest trees of seeding age were the elm, some maple and a scattering of hackberry, so they were the invaders. They grew slowly and erosion scoured out ditches and then junipers came in. In the succeeding years, when the deciduous trees began to shade the ground, many of the early plants disappeared. In time the field was a rank growth of vegetation with masses of perennials, blackberries and elm seedlings. On the better soils the elms became so dense that all ground cover was killed."

Elms, maples and locusts were never part of the hillside climax of the original forests, Beilmann points out, but grew along streams. "It was only after several generations of careless timber cutting had removed all the oaks, hickories and sugar maples that the worthless species were able to take over. The elm has been outstanding in its ability to take over abandoned land, and in fifteen years the areas support no game and little other vegetation."

Four tools have been tried to convert these brushy fields to grassland—fire, the ax, the mowing machine and cattle. None of the tools were found perfect when used singly. Fire destroyed the trees and brush, but it also burned the humus and opened the land to erosion. Chopping out the trees was too laborious and costly. Chopping and burning, however, were good supplementary tools when used with mowing machines and grazing cattle.

The first grazing experiment was started in 1938 when a herd of beef cattle was turned into a field so overgrown with brush and elm trees that no foot trails or paths existed. After the third year, bluegrass began

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to appear in many places and seedling elms were less evident. Within five years more bluegrass was evident and the elms had been set back so much that 2700 manhours were devoted to brush clearing which opened up portions of about 300 acres in sections where the most clearing could be obtained with the least effort. The procedure of cutting more and more brush each year and mowing the open areas has proved successful in clearing the fields with the least expense and labor.

Regular, well-timed mowing, however, has been essential to keep the open spaces from reverting to brush from the seed trees growing around the edges, and to keep weeds from taking over.

Timing the mowing is the trick, Beilmann points out. "We have demonstrated that bluegrass can be grown and that weeds can be checked if no mowing is done until the bluegrass has ripened seed," he relates. "The solution has been found to be simple to maintain a bluegrass meadow—don't mow until July. If, on the contrary, mowing is begun early in the spring, the bluegrass has little chance to grow and shortly weeds take full possession."

The arboretum tract has been laid out according to modern design for visitors who come in automobiles, many of whom never get out of their cars. They enter at the main gate through the pinetum and follow a 2-mile graveled road that winds through meadows and woodlands to the field house on the highest elevation, where there is parking space to enjoy panoramic views.

The meadows are background for the most popular attraction at the Extension, the spring blossoming of around 2,000,000 daffodils, jonquils, "paper whites," or "honey cups," whatever one prefers to call members of the narcissus family. From the first week in March until early May, they burst into bloom in the largest and most comprehensive tests that have ever been made anywhere in naturalizing narcissi.

Back in 1927, several bushels of old-fashioned daffodils from Tennessee were planted in the meadows next to the arboretum and have flourished.

Most commercial varieties were found eminently unsuitable, Dr. Anderson reports. Their flowers are so large as to look out of place in such an environment, their stems are weak and the flowers do not stand up well in strong wind. The best varieties for sturdy, reliable massed

effects on the Ozark hills were obtained from old abandoned homes, from small dooryard gardens, from their native Peruvian haunts, from old English gardens and from other narcissi enthusiasts who cherished some particular old-fashioned specimens.

The development of a 400-acre wildflower reservation along a rocky river site presented not one problem, but a whole set of problems, both botanical and horticultural, according to Dr. Anderson.

"It is gardening, but gardening on such a scale and under such conditions that only natural forces can be used to advantage," he states. "Weeding, planting out, manuring, watering, mulching—all such customary operations are out of the question on a 400-acre wild garden. Even if there were an army of gardeners to perform on such a scale, it would be difficult to direct their efforts. The goal on such a wildflower reservation is the production of a beautiful landscape in which the hand of man is not apparent.

Bringing back the wildflowers to the area has been a complicated series of experiments in which the whole garden staff has participated. The glade gardens, cliffside gardens, meadow gardens, and woodland gardens all presented distinct problems with particular species of plants adding problems within problems. There is no way to describe the work in general terms.

One of the most charming woodland scenes in the Ozarks, a combination of redbud and dogwood, has been attained by a minimum of expense and labor, combined with efficient planning. It is along a fire trail. When the trail was cut through a wooded section, the redbuds seeded themselves in abundantly from scattered nearby trees. If left to themselves, most of them would have been shaded out eventually by the rapidly growing stump sprouts. But every few years the sprouts were cut out, and selective red cedars and the few dogwoods present were encouraged. Additional dogwood seedlings were set out and more redbuds sowed in desirable places along the trail. Today the trail presents a superlative display of redbud and dogwood, effectively backed by red cedar foliage.

The spontaneous reappearance of some species of wildflowers not found on the tract in the early days is of great interest to staff members. Four such species, the pale gentian, crested coral-root orchid, lyre-

leaved sage and the wood lily, which had been reported vanished from the local flora since 1911, are now present, according to Louis G. Brenner, ecologist and ground superintendent.

Nature has such a close interrelationship that everything in a given area either directly or indirectly affects everything else growing there, Brenner points out. This is the science of ecology—the mutual relationship of plants and animals to their environment which is the basic restoration plan of the Ozark landscape.

The amazing return of wildlife indicates to the garden experts that they are succeeding in restoring the biological balance to the land.

Although for 20 or 30 years, beaver had practically disappeared from Missouri and none were left in the Ozark region, in 1939 a colony of beaver showed up in the Extension tract along the Meramec River. Brenner reports they found good pasture to their liking in an acreage of cottonwood and willow. They built their characteristic dams and mudhouses on the banks of a bordering slough, since the river itself was too large and fluctuating for their purpose. They multiplied rapidly, and today several other colonies have established themselves further up the river.

Deer, however, are the most thrilling wildlife at the arboretum to visitors, who are always excited to see a white-spotted fawn browsing at the edge of a meadow or to catch a glimpse of antlered stags and does dashing away. The first indication that deer had returned to the area was when a resident gardener found deer tracks along rows of young beans which had been nipped off. It is assumed dogs had chased the first animals into the area from more remote woods. Those first comers have built up a herd which today numbers between 30 or 40 animals.

The Mississippi Valley Red Wolf is both a resident and a transient, as they ranged as far as a 12-mile radius for food. On several occasions, their dens with young have been located on the grounds. The red fox is abundant and scarce in unexplained cycles. Always there are squirrels—red, grey and flying ones—opossums, raccoons, and skunks.

The area has become a natural sanctuary for birds—red-tailed hawks, pileated woodpeckers, owls, osprey and quail as well as innumerable songbirds and immense flocks of robins which winter in the glades.

(Turn to page 71)



DELEGATES TO THE PACIFIC NORTHWEST TRADE CONFERENCE in Portland last month were warned against "complacency and smug satisfaction" in the wealth of their forest resources. The Honorable Ray Williston, Minister of Lands and Forests for British Columbia, said that only the forest industries themselves can solve the marketing problems facing them. "Above all else," the Canadian Minister declared, "the industry must remain competitive and must diversify its products." In predicting the future, Mr. Williston said the market would be for wood cellulose products—not lumber. "Tomorrow your car may ride on wooden tires," he declared, "the car body may be wood plastic base. You may eat wood, wear wood and even drink wood."

ERVIN L. PETERSON, ASSISTANT SECRETARY OF AGRICULTURE told the gathering that water was the "number one problem" in conservation today. "Water is vital to life itself," he declared, "and people must not lose control even to a benevolent government. Private ingenuity should have an opportunity to develop water management." Peterson indicated that the role of government, both federal and state, should be cooperative with private industry in the entire field of resources development.

THE KEYNOTE SPEAKER, Marshall N. Dana, assistant to the president, U. S. National Bank, saluted the men of the Northwest for making the forest industry first in the region's economy. With annual income at the \$2 billion mark, forestry greatly outranks agriculture's \$1.79 billion and tourism's \$1 billion.

"FEW PEOPLE HAVE A TRUE PICTURE of the size and complexity of lumber production and marketing," Bernard L. Orell, vice president, Weyerhaeuser Sales Company, told the conference. About 55,000 manufacturers produce annually about 40 billion board feet which is marketed by 12,000 wholesale distributors and 26,000 retailers. Essentially it is small business, he said, as the largest producer accounts for only 3 percent of the total output and no distributor handles as much as 4 percent of the lumber. Consequently "this complexity of production and distribution causes the industry to be particularly sensitive to changes in the economic pattern."

WITH COMPLETE REPORTS NOT YET IN, Department of Agriculture officials last month estimated that about seven million acres were contracted for the Conservation Reserve of the Soil Bank, under the program which closed for this year on April 15. A sign-up of over 6.7 million acres has been reported to the department, with about three percent of the counties still unreported. More than 500,000 acres to be planted to trees are covered by contracts that have been submitted. Most of the tree planting is to be done in states bordering the Great Lakes and in the Southeast. In the Great Plains area there was a heavy sign-up of contracts calling for grassland plantings.

UNDER THE PROJECTED SIGN-UP OF SEVEN MILLION ACRES, farmers who have placed land in the program would be eligible for a total of about \$112,050,000 in Conservation Reserve payments this year. Of this total about \$50,450,000 would be practice payments for applying conservation measures to the land and \$61,600,000 would be the first of the annual payments to be made each year the Conservation Reserve contracts are in force and complied with. On a national average, the annual payment for Conservation Reserve land amounts to somewhat less than \$9 per acre.

GEORGE M. JEMISON, has been named Deputy Assistant Chief of Research for the Forest Service. In this newly-created position which he assumes July 1, in Washington, D. C., Dr. Jemison will help plan, direct and coordinate all Forest Service research programs and activities. He is presently director of the Forest Service's California Forest and Range Experiment Station, and will be succeeded by Dr. R. Keith Arnold, a staff member for the past six years.

WHAT'S NEWS ACROSS THE NATION—(Continued)

DEFICIENCY APPROPRIATIONS FOR FORESTRY AND RELATED ITEMS for the current fiscal year, ending June 30, 1957, include \$950,000 for the Agricultural Research Service for control of outbreaks of insects and plant diseases, \$5 million for the Forest Service for fighting forest fires, plus authority to use \$1,500,000 from other unspent agricultural appropriations for fire fighting. A deficiency request for \$800,000 by the Forest Service for control of forest pests has been approved by the House Committee on Appropriations, but the amount is to be absorbed by transfer of funds from current appropriations for other departmental activities.

THE SOIL BANK PROGRAM has received sharp criticism from the House Appropriations Committee in its report on H. R. 7441, the appropriations bill for the Department of Agriculture and Farm Credit Administration for the fiscal year ending June 30, 1958. Principal target was the acreage reserve which the committee called "ineffective" and expensive. The conservation reserve phase of the program, under which farm lands are planted to trees or grass, was conceded some credit for its effects on conservation, but not for any appreciable effect on the reduction of surplus crops. As a result, the committee cut \$600 million from the budget request of \$701 million for the acreage reserve. Amendments on the floor of the House provided further that no part of the \$600 million appropriation can be used for new contracts in 1958. Included in the budget request was \$5 million for the expansion of State operated tree nurseries. The committee directed the Department of Agriculture to make a new survey of the need for state nursery expansion and to limit federal support to those areas where private nurserymen cannot meet the need at reasonable prices.

EXPANSION OF TIMBER-GROWING LAND AND EXPANSION OF FOREST PRODUCTS RESEARCH by increased federal programs is recommended by the Task Group on Forest Products of the President's Commission on Increased Industrial Use of Agricultural Products. Total annual expenditures for forest products research reaching \$13 million at the end of a ten-year-period, as compared with \$2.3 million in 1957, are recommended. New laboratory facilities at the Forest Products Laboratory, Madison, Wis., at a cost of \$8 million are suggested. Of the annual \$13 million expenditure, \$9 million would be allotted to the Forest Products Laboratory for direct research and development; \$1 million would be for contracted research and development; \$2 million for forest products work at Forest Service experiment stations and \$1 million for naval stores research. The suggested research program lies in six broad areas: (1) timber quality-growth relations; (2) properties of wood and wood components; (3) physical and chemical effects related to processing and use of wood and wood materials; (4) timber harvesting, conversion, and processing, and development of new uses; (5) naval stores; and (6) economic appraisal and effectuation of research programs through economic development.

EVALUATION OF RECREATIONAL BENEFITS RESULTING FROM CONSTRUCTION OF RESERVOIRS as a factor in justification of dams built for flood control, navigation or reclamation has been approved by the Senate Committee on Public Works. These by-products of dam construction had not been previously considered in computing benefit-to-cost ratios. A minority report by Senators Cotton and Hruska objects to the proposed new evaluation factor. It is pointed out that if the value of recreation becomes a factor in support of federal projects, it will also become a purpose of federal projects. The current backlog of authorized federal projects, including those in S. 497, passed by the Senate this year, is more than \$10 billion. By use of the recreation factor, projects which may not otherwise meet the benefit-to-cost criteria may be justified. As written, the bill provides for retroactive application to projects not yet activated.

THE NATIONAL RECREATION RESOURCES REVIEW proposal was the subject of hearings in mid-May, by both Senate and House committees. General reaction appears to be favorable, although it was indicated in testimony that a special act may not be necessary to accomplish the purposes of an inventory of the nation's recreational resources. Authority for such investigations was placed with the National Park Service in 1936.

TENTATIVE DATES FOR HEARINGS ON THE WILDERNESS PRESERVATION SYSTEM bills have been set for June 20 and 21 before the subcommittee on Public Lands of the House Interior and Insular Affairs Committee. Congresswoman Gracie Pfost of Idaho is the chairman of the subcommittee.

Missouri's Botanical Garden

(From page 68)

Especially have the quail returned in great numbers, with improvement in the habitat.

The practical work of restoring the Ozark hills to their former landscape cannot be ignored. Making the changes and maintaining them has involved a lot of hard labor, much mechanical equipment and imaginative planning.

Mule teams were used in starting the construction work in the 20's, but the equipment has long since been highly mechanized. One of the most practical developments in the 40's was the establishment of a sawmill with an adjacent lumber yard. No trees have been cut for commercial timber, but all the usable trees taken out for fire trails, fence rows, windfalls and thinnings have been sawed for rough lumber. It is used as needed especially around the greenhouses.

A chipper has been one of the most efficient pieces of equipment. When it was bought in 1950, it was said to have been the first one sold west of the Mississippi River. All waste wood and brush are run through it to provide bedding around the feeding pens of the cattle. In the summer the chips are removed and spread back on the meadows or used for mulch around newly set trees.

The development of a "trail sweeper" by garden employees has finally solved the serious problem of keeping leaves off the trails. Unless they were raked off, the trails failed to function as fire-breaks, and in rainy weather they subjected the ground to rutting.

Using a trailer-type, tree-sprayer tank equipped with high-pressure pump, operating at 600 pounds per square inch pressure, blasts of air and water are now turned on the trails. The leaves are swept to the sides in a natural appearance. In a day and a half the 6½ miles of trails can be swept cleaner and cheaper than it was ever done by hand raking.

So restoration of the Ozark landscape goes on. The 1600-acre tract is a combined scientific research laboratory, a botanical garden of native vegetation, a practical demonstration of conservation practices, and an everchanging, seasonal flower show for the public.

TRAIL RIDERS OF THE WILDERNESS



Beauty and grandeur of inaccessible places always impresses riders

There is still time to join the Trail Riders for that trip of adventure in the Western wilderness this summer . . . ride the narrow trails in the rugged back country of our national forests . . . fish in lakes and streams . . . climb the mountains or hike around the lake . . . enjoy the companionship of fellow riders . . . relax before the evening campfire . . . sleep soundly under a canopy of stars. You will be thrilled with the rugged grandeur and beauty of high mountain ranges, deep valleys and canyons, flower-covered meadows. A memorable experience awaits you on one of these expeditions:

FLATHEAD-SUN RIVER WILDERNESS, MONTANA

July 5 to July 16; July 16 to July 27
\$220 from Missoula
Parties limited to 25

GLACIER PEAK-LAKE CHELAN, WASHINGTON

August 5 to August 16
\$225 from Wenatchee, Washington
Party limited to 25

HIGH UNTAS WILDERNESS, UTAH

July 15 to July 25
\$230 from Vernal, Utah
Party limited to 20

EAGLE CAP WILDERNESS, OREGON

August 20 to August 31
\$225 from La Grande, Oregon
Party limited to 25

SAWTOOTH WILDERNESS, IDAHO

July 30 to Aug. 9; Aug. 13 to Aug. 23
\$225 from Sun Valley
Parties limited to 25

SAN JUAN WILDERNESS, COLORADO

Aug. 20 to Aug. 30; Sept. 2 to Sept. 12
\$230 from Durango
Parties limited to 25

WIND RIVER MOUNTAINS, WYOMING

August 5 to August 16
\$250 from Pinedale, Wyoming
Party limited to 20

PECOS WILDERNESS, NEW MEXICO

September 9 to September 20
\$225 from Santa Fe
Party limited to 25

Registration on the following expeditions is closed, but in the event of an emergency cancellation it may be possible for you to take up the reservation. If you are interested in joining one of these groups, we suggest you let us know and we will do everything we can to make the trip possible for you:

QUETICO-SUPERIOR WILDERNESS, MINNESOTA (Canoe trip)

July 15 to July 24

WIND RIVER MOUNTAINS, WYOMING

July 15 to July 26

MAROON BELLS-SNOWMASS WILDERNESS, COLORADO

July 29 to August 8; August 9 to August 19

Write or wire for detailed information, itineraries, and reservations.

THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street, N.W.

Washington 6, D. C.

Lawyer With an Evergreen Thumb

(From page 35)

Why does Bolich do this? And what are some of his lasting accomplishments?

The story begins long before his "green Midas touch" erupted in full bloom in 1955; as a matter of fact it begins with Teddy Roosevelt and a fruitless orchard that belonged to Bolich's father in Schuylkill County, Pennsylvania. Both played dominant roles.

The inspiration of the great conservationist Roosevelt is always around Bolich. Prominent on the wall behind the lawyer's office chair is a portrait of the great Teddy among pictures of conservation interest. Bolich admits to hero worship of the former President since he was a boy.

When Bolich was a child his family owned a peach orchard. After the trees lost productivity and his father's retirement from orchard interests, the unproductive orchard was turned over to Charles, then 18. The year was 1919.

Rather than see his newly acquired land lie in waste, Bolich removed the peach trees and planted his first evergreen seedlings. Five of the 30 acres on the family farm went into seedling, mostly white and Scotch pine.

Today that first venture into forestry is about to pay off in marketable softwood timber.

But the motivation that inspires Bolich is not timber marketing. It is the soil erosion control, flood protection, and wildlife cover.

Sufficient recompense upon his 320 acre farm in the White Mountains of New Hampshire, for example, have been its wildlife cover, soil and flood control, and beauty. Nevertheless, he will follow marketing practice and selectively cut timber rather than let the trees rot.

Near Slatington, Pennsylvania, Bolich owns a farm on which he has planted 30,000 seedlings at one crack and 40,000 at another shot. It is here that Bolich's true interest in conservation is evidenced. On this property he has kept a pond bountifully stocked with trout. And his plans include creating several more ponds, multiplying by three or four the present capacity for fish growth.

This type of interest, of course, is not unique around the county, but his general outlook is recognized by many conservation leaders as the

action most likely to prod a move toward foresting some 3,000 "needy" acres, which is the amount of acreage in the county estimated as not suited for farming and at the same time very well suited for Bolich's program.

As in many other areas of the nation, the need for such a project has been great in Lehigh County, which only a few years ago had the lowest ratio of any county in the state in woodland, with the exception of Philadelphia County, which is practically all concrete. Even Allegheny County, containing Pittsburgh, had a greater percentage of land in trees than Lehigh.

If Bolich's efforts rub off on other individuals with a big heart and a green thumb, it will prove highly beneficial to the commonwealth. State Forester R. C. Wible commented that "the publicity resulting from this program undoubtedly prompted the planting of many trees beyond the borders of Lehigh County. Other efforts similar to Mr. Bolich's would benefit the citizens of the state."

Such contagion is welcome, for Pennsylvania still bows its head in shame for its past misdeeds in forestry. Pennsylvania at one time was the greatest lumber producing region in the world, and now ranks 25th among the states of the Union.

As an example of Pennsylvania's woodland sins, Williamsport and vicinity stand out. A century ago, that region was beautifully blessed with trees and produced more white pine than all the rest of the world combined. Then came "progress" and the area was slashed down to nudity as the land was cleared without consideration for future generations.

Cognizant of this, Bolich's mission was all too clear to him.

It was 1955 when his concern hit him hard enough to stimulate his generous efforts. His first wife, Mary Margaret, had died the year before and he decided to launch his dream of giving away seedlings, as a memorial to her. This was merely another step in character with his generosity, for that same year he also set up a medical foundation as a memorial to his wife. He donated \$100,000 to it, with the money to be used for drugs, medicines, etc., for the needy.

In regard to his forestry generosity, he thought again in big terms—five million seedlings; but he thought a goal of one million would be more believable to the public. So, a million it was. But he has told those around him that he would still like to donate five million, or more if the public desires.

Another instance involved the city of Allentown. A dry spell in 1955 wiped out 40,000 trees along the municipal watershed. While officials were pondering the situation, Bolich donated 30,000 seedlings to the city. He followed that last year with another 15,000 to make up for the drought loss, and aid in maintaining clean water for the city and for fishing. The attorney hopes that this gesture may have stimulated Allentown into developing a community forest which it has been considering on and off for a number of years.

The trees Bolich gave in his first donation—18,000 to David A. Miller—was the largest number he has ever given to an individual because few persons could maintain or even plant that many.

He has donated many thousands of seedlings to at least a half dozen sportsmen's organizations and to quite a few churches.

Allentown Central Catholic High School and Parkland High each engaged in a planting program on Arbor Day, 1956, with students planting the seedlings under the direction of teachers and district foresters.

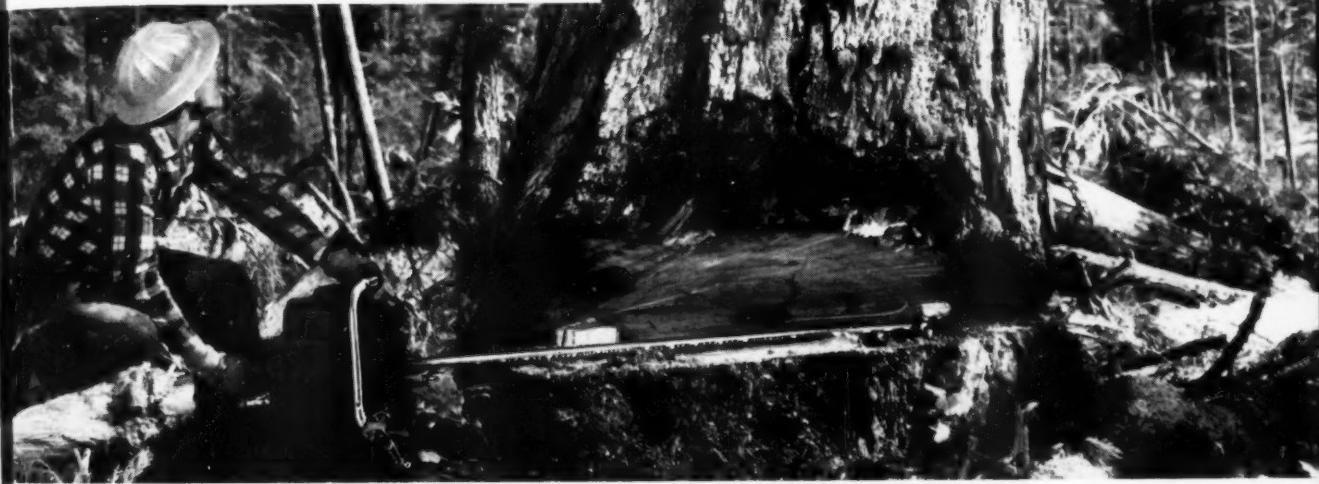
To make reforestation easy for any group, Mr. Bolich bought a special tree planter for their use.

But the high school program is something Bolich hopes will grow much bigger.

And an even more imaginative plan is Bolich's unique program with colleges in the area, such as Moravian, Muhlenberg, Lehigh and Lafayette. Although still in the formulative stage, what it boils down to is a move to get alumni to donate land to their colleges for tree plantings. When the trees mature the funds from marketing the timber would be used by the college for some project to be agreed upon.

Remarkably he doesn't spend time endlessly preaching his cause, although he does encourage others to renew trees when the opportunity arises. He simply bolts into action and practices his ideas of replenishment.

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The going is rough here and the rigs are doing two jobs in one, but production averages

AN ACRE AN HOUR

Vredenburgh Alabama Properties have timberland of about 104,000 acres in Monroe and Wilcox Counties, Alabama. This acreage is stocked mainly with loblolly and short leaf pine. The company combines hardwood eradication and control and preparation for natural reseeding in one operation. Key machines for the job are two CAT* D7 Tractors. Equipped with No. 7S Bulldozers and Hyster winches, these units pull heavy-duty Rome harrows. Here you see them working terrain typical of the acreage. Production averages an acre an hour—8 acres an 8-hour day.

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